

DVP-S9

SERVICE MANUAL

Ver 1.7 2004.09

*AEP Model
UK Model
E Model
Australian Model*



DVP-S9 is the DVD/Video CD/CD player section in MHC-S9D.

Model Name Using Similar Mechanism	NEW
CD Mechanism Type	CDM63D
Optical Pick-up Name	KHM-240AAA (TYPE A)
	KHM-270AAA (TYPE B)

SPECIFICATIONS

DVD/Video CD/CD player section

Laser	Semiconductor laser ($\lambda=660$ nm/780 nm) Emission duration: continuous
Frequency response	DVD (PCM 48 kHz): 2 Hz – 22 kHz = (± 1 dB) CD: 2 Hz – 20 kHz = (± 1 dB)
Signal-to-noise ratio	More than 90 dB
Dynamic range	More than 90 dB
Video color system format	NTSC, PAL
OPTICAL OUT (Square optical connector jack, rear panel)	

General

Power requirements	
European model:	230 V AC, 50/60 Hz
Australian model:	230 – 240 V AC, 50/60 Hz
Mexican model:	120 V AC, 60 Hz
Korean model:	220 V AC, 60 Hz
Thailand model:	220 V AC, 50/60 Hz
Other models:	120 V, 220 V or 230 – 240 V AC, 50/60 Hz
Dimensions (w/h/d)	Approx. 280 x 108 x 330 mm
Mass	Approx. 2.9 kg

Design and specifications are subject to change without notice.

DVD/VIDEO CD/CD PLAYER

9-873-280-08

2004I05-1

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Sony Corporation

Audio Group

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CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.



This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

CAUTION

The use of optical instruments with this product will increase eye hazard.
As the laser beam used in this CD/DVD Player is harmful to eyes, do not attempt to disassemble the cabinet. Refer servicing to qualified personnel only.

The following caution label is located inside the apparatus.



NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270 °C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board. (within 3 times)
- Be careful not to apply force on the conductor when soldering or unsoldering.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  OR DOTTED LINE WITH MARK  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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SECTION 1
SERVICING NOTES

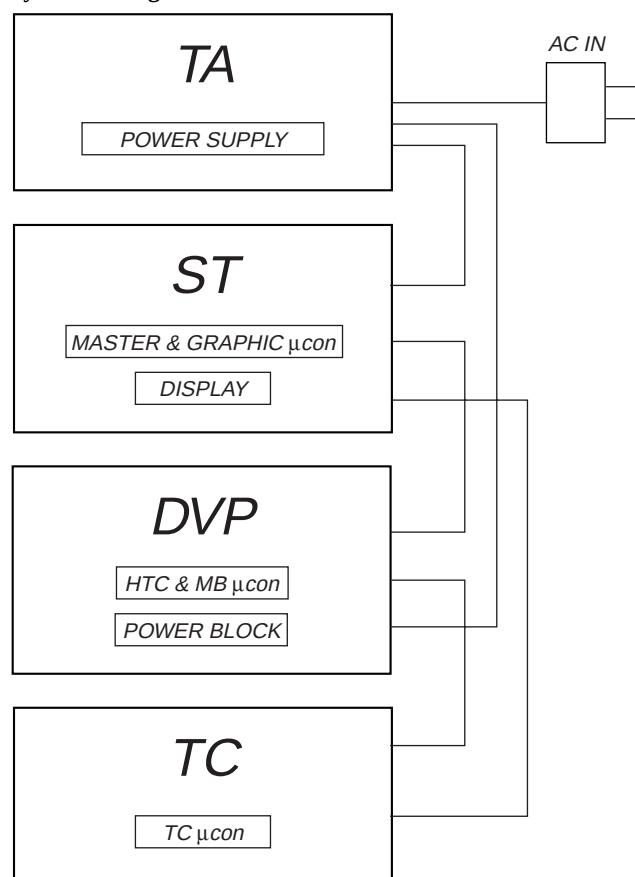
This set is a component of the MHC-S9D.

The MHC-S9D system configuration is as shown below, and therefore it does not operate normally unless all four components are connected.

In performing the repair, connect all components with the system cables.

Note: The precaution to the users is described on the label stuck on the back panel (DVD/video CD/CD player) and in the troubleshooting section in the Operation Manual.

System Configuration:



NOTE OF REPLACING THE MB BOARD

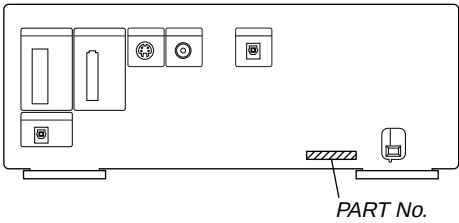
When replacing the MB board, since the adjustment value is not set up correctly, “Drive Auto Adjustment” can’t be performed. In this case, initialize Memory in the following procedures.

Procedure:

- 1. Set the test mode. (See page 12)
- 2. Press the [2] key of the remote commander, and set the “DRIVE MANUAL OPERATION”. (See page 18)
- 3. Press the [6] key of the remote commander, and set the “2-6, Memory Check”. (See page 20)
- 4. Press the [CLEAR] key of the remote commander, and initialize Memory.

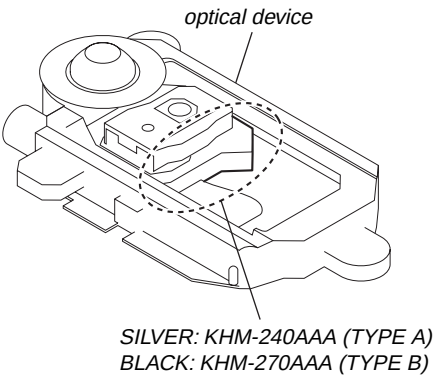
MODEL IDENTIFICATION

- Back Panel -



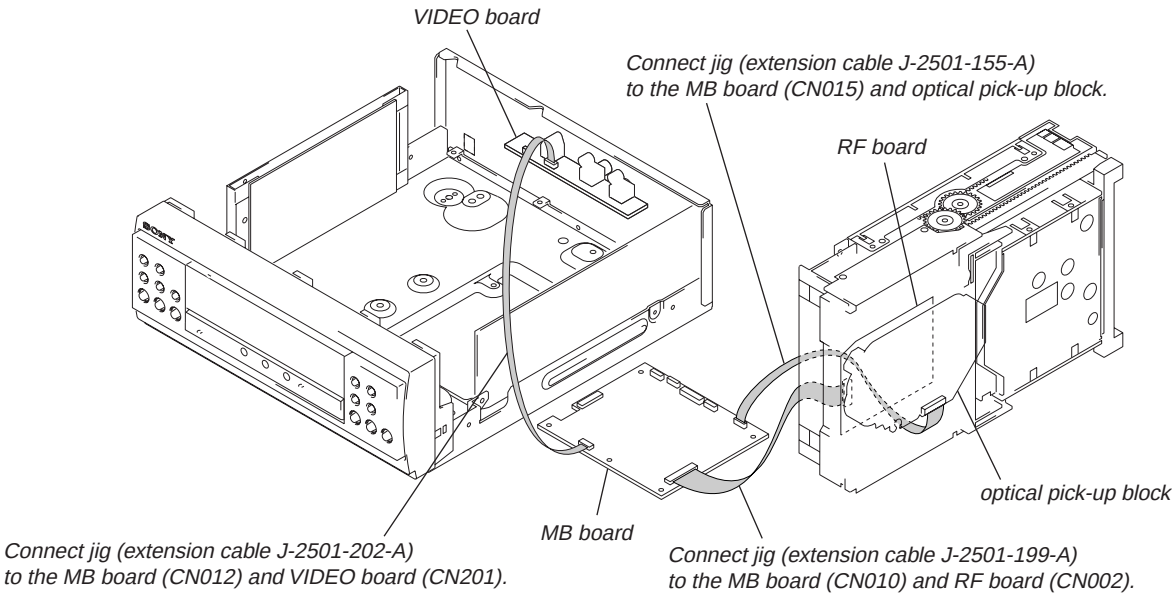
Model	PART No.
AEP model	4-236-808-0□
UK model	4-236-808-1□
Korean model	4-236-808-3□
Singapore model	4-236-808-4□
Saudi Arabia model	4-236-808-5□
Austrarian model	4-236-808-6□
Thai model	4-236-808-7□
E model	4-236-808-8□
Mexican model	4-236-808-9□

TYPE A/B DISCRIMINATION



SERVICE POSITION

In checking the CD block and another board, prepare jigs (extension cable J-2501-155-A: 300 mm 9 cores, J-2501-199-A: 300 mm 25 cores, J-2501-202-A: 300 mm 8 cores).



SECTION 2
GENERAL

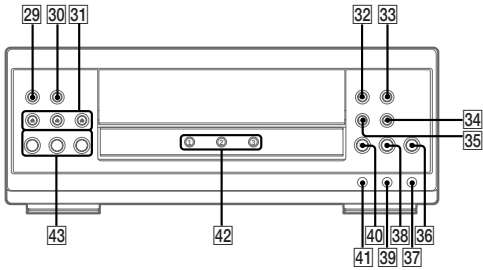
This section is extracted from instruction manual.

Parts Identification

The items are arranged in alphabetical order.
Refer to the pages indicated in parentheses () for details.

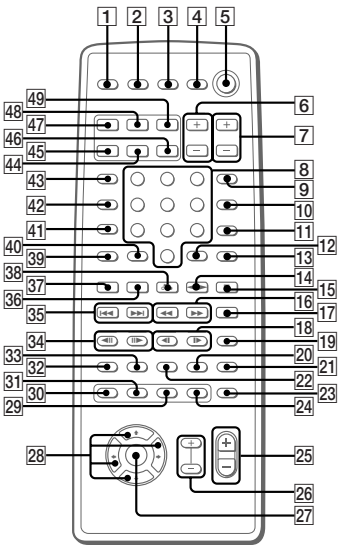
Main unit

DVD/VIDEO CD/CD player



- DISC 1-3 **43** (25, 26)
- DISC 1-3 indicators **42**
- DISC 1-3 ▲ (eject) **31** (25, 26)
- NEXT **39** (26, 27)
- PLAY MODE **29** (25, 28, 29, 46)
- PREV **41** (26, 27)
- REPEAT **30** (12, 30)
- RETURN ⏮ **37** (12, 27, 39, 40)
- ▶ SELECT (play) **40** (25-27, 41, 55, 60)
- ⏸ (pause) **38** (26)
- (stop) **36** (12, 26, 27, 30, 38, 45, 55, 61)
- ⏮ (go back) **35** (26, 28, 30)
- ▶ (go forward) **34** (26, 28, 30)
- ⏮ (rewind) **32** (26)
- ▶ (fast forward) **33** (26)

Remote control



- ANGLE **32** (37)
- AUDIO **22** (34)
- CLEAR **12** (22, 29, 30, 36)
- CLOCK/TIMER SELECT **3** (47, 56)
- CLOCK/TIMER SET **2** (17, 47, 56)
- DBFB **41** (48)
- D.SKIP **9** (26)
- DIGITAL **44** (57)
- DISPLAY **47** (17, 31, 32, 43, 54)
- DVD DISPLAY **23** (18, 19, 30, 32-34, 36-40)
- DVD MENU **21** (27)
- DVD SET UP **19** (18, 19, 24, 39)
- ENTER **27**
- EQ **31** (52)
- EQ ON/OFF **29** (53)
- FILE SELECT +/- **26** (48, 49, 53)
- FUNCTION **43** (18, 25, 27, 28, 36, 45, 46, 55, 57)
- GROOVE **42** (48)
- KARAOKE PON (Except for North American and European models) **39** (54)
- MD **46** (57)
- Numeric buttons **8** (28, 30)
- PLAY MODE **11** (25, 28, 29, 46)
- REPEAT **10** (30)
- RETURN ⏮ **13** (27, 39, 40)
- SELECT DVD ▶ **36** (20, 25, 27, 29, 30)
- SET UP **24** (14, 16, 51, 53, 54)
- SLEEP **1** (55)
- SLOW ◀/▶ **18** (26)
- SPECTRUM ANALYZER **48** (54)
- STEP ◀/▶ **34** (26)
- SUBTITLE **33** (37)
- SUR **30** (51)
- TAPE A ◀/▶ **38** (44)
- TAPE B ◀/▶ **14** (44, 45)
- TITLE **20** (27)
- TUNER/BAND **37** (42)
- TV I/⏮ **4** (13)
- TV CH +/- **7** (13)
- TV/VIDEO **49** (13)
- TV VOL +/- **6** (13)
- VIDEO **45** (57)
- VOL +/- **25**

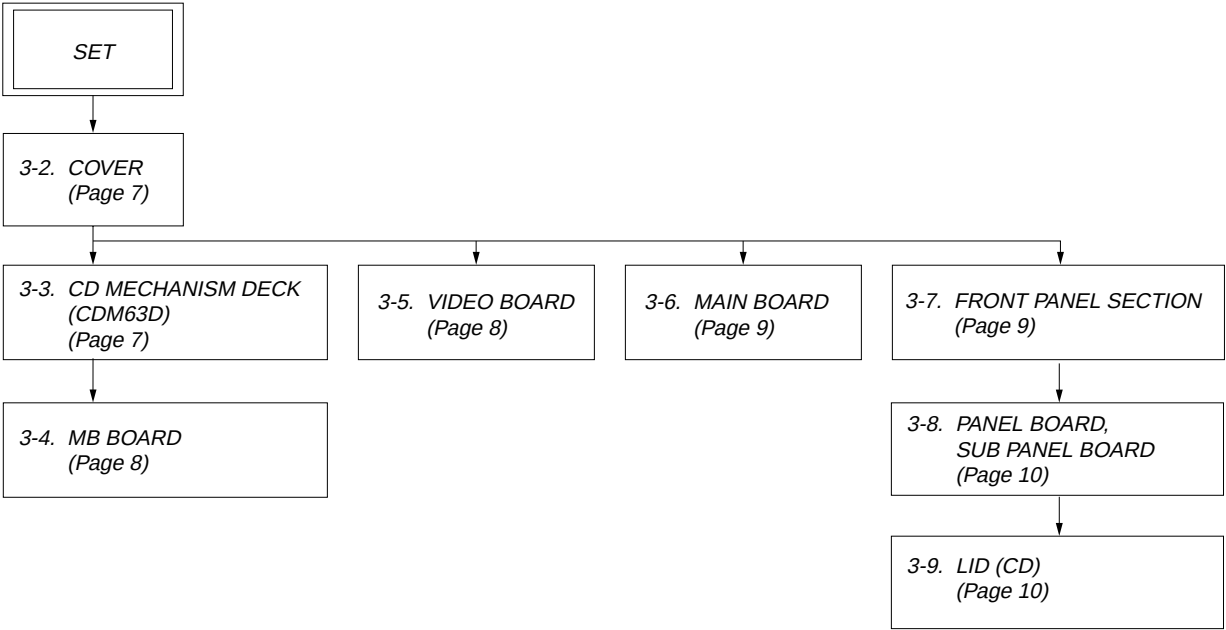
BUTTON DESCRIPTIONS

- I/⏻ (power) **5**
- ⏸ (pause) **17**
- (stop) **15**
- ◀/▶ (rewind/fast forward), TUNING +/- **16**
- ◀/▶ (go back/go forward), PRESET +/-, PREV/NEXT **35**
- ⏮/⏭/⏮/⏭ **28**
- >10 **40**

SECTION 3
DISASSEMBLY

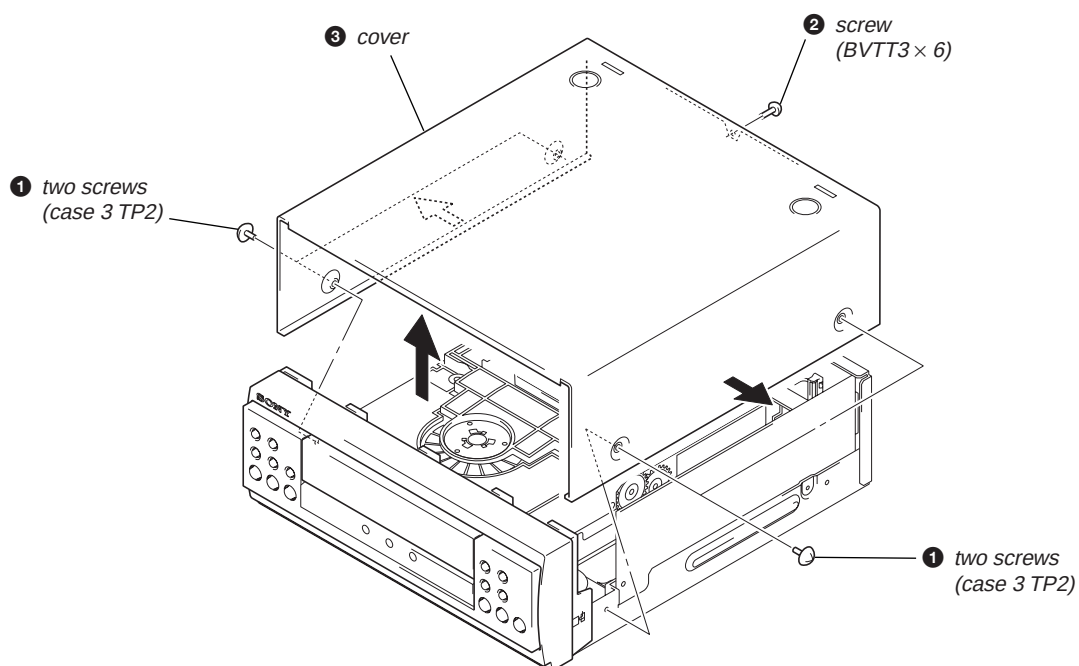
• This set can be disassembled in the order shown below.

3-1. DISASSEMBLY FLOW

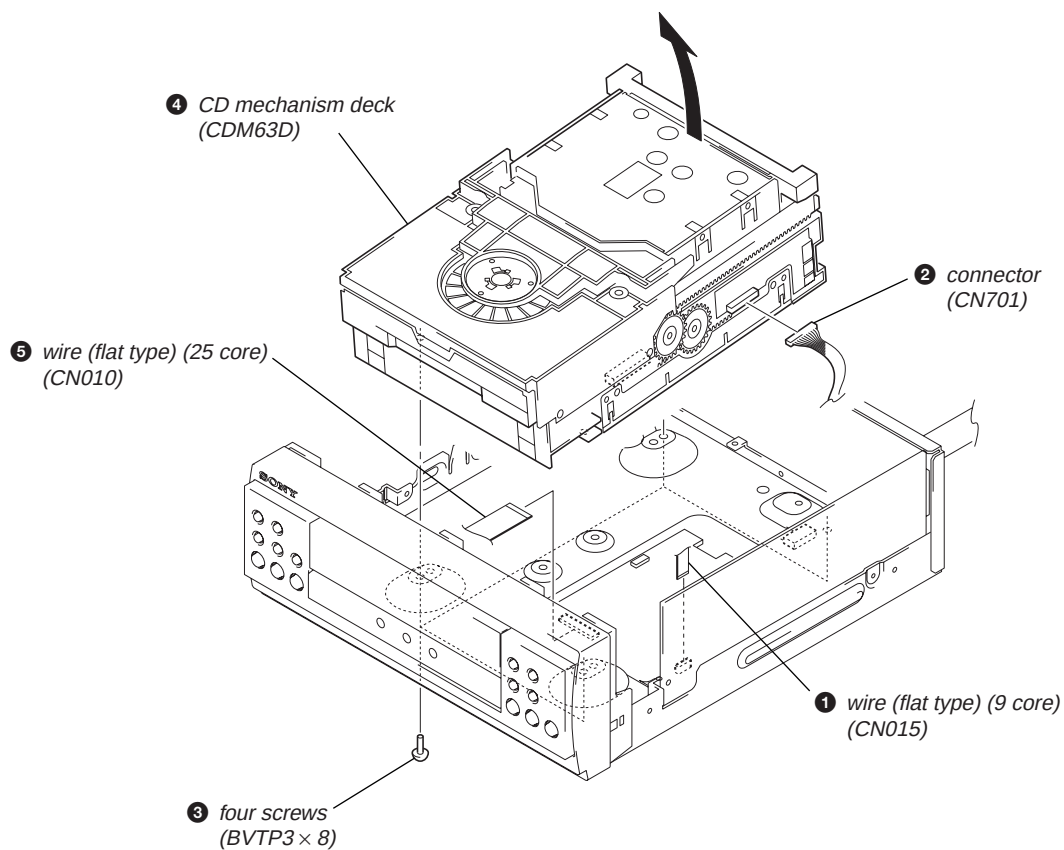


Note: Follow the disassembly procedure in the numerical order given.

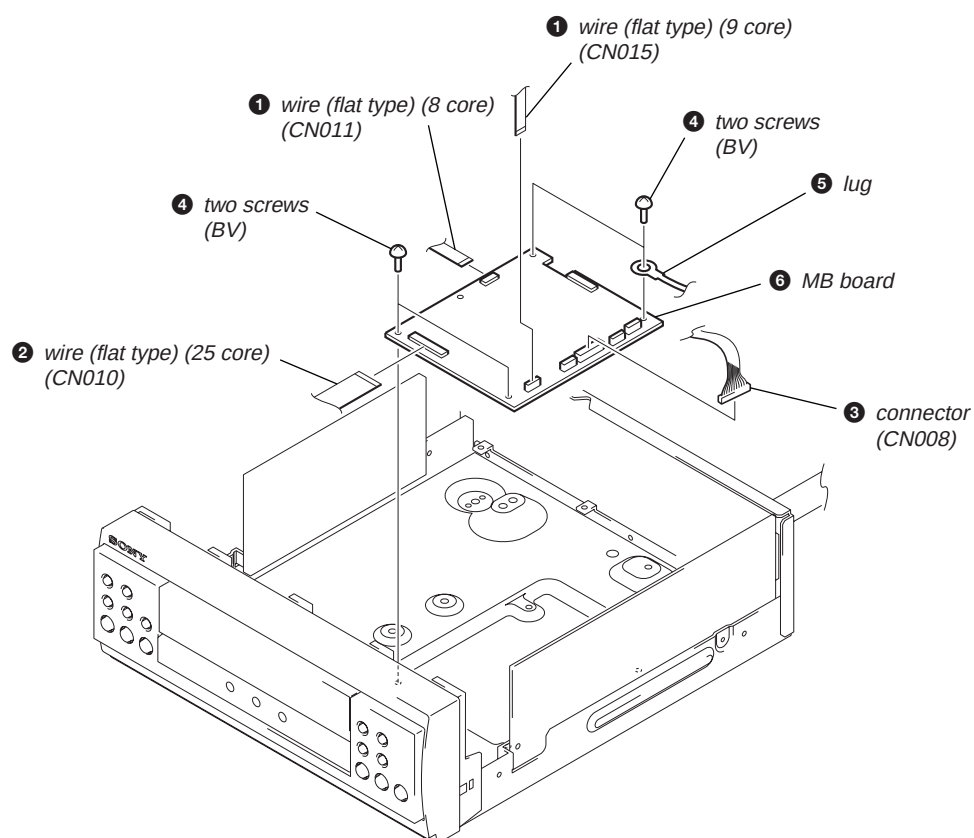
3-2. COVER



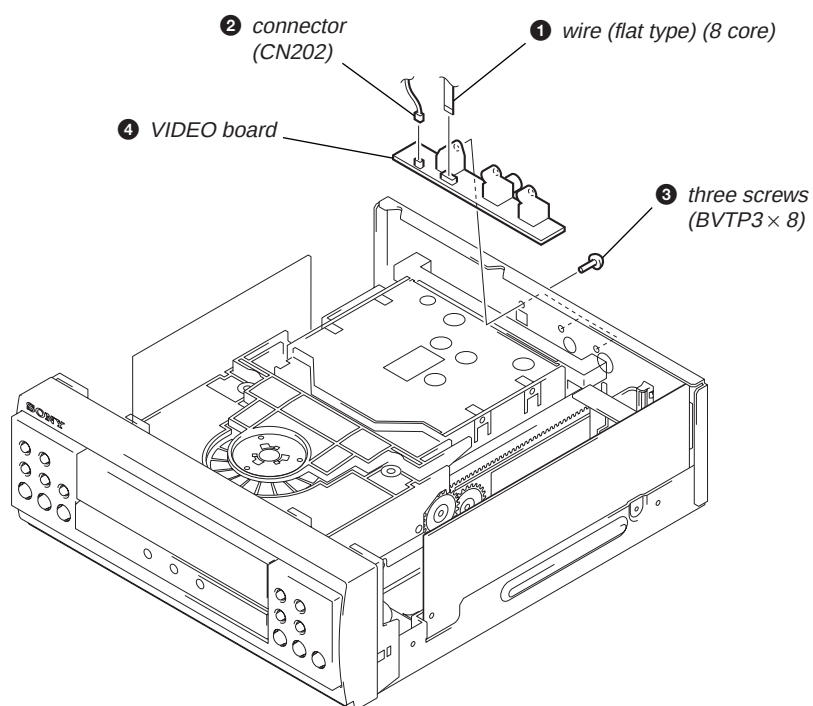
3-3. CD MECHANISM DECK (CDM63D)



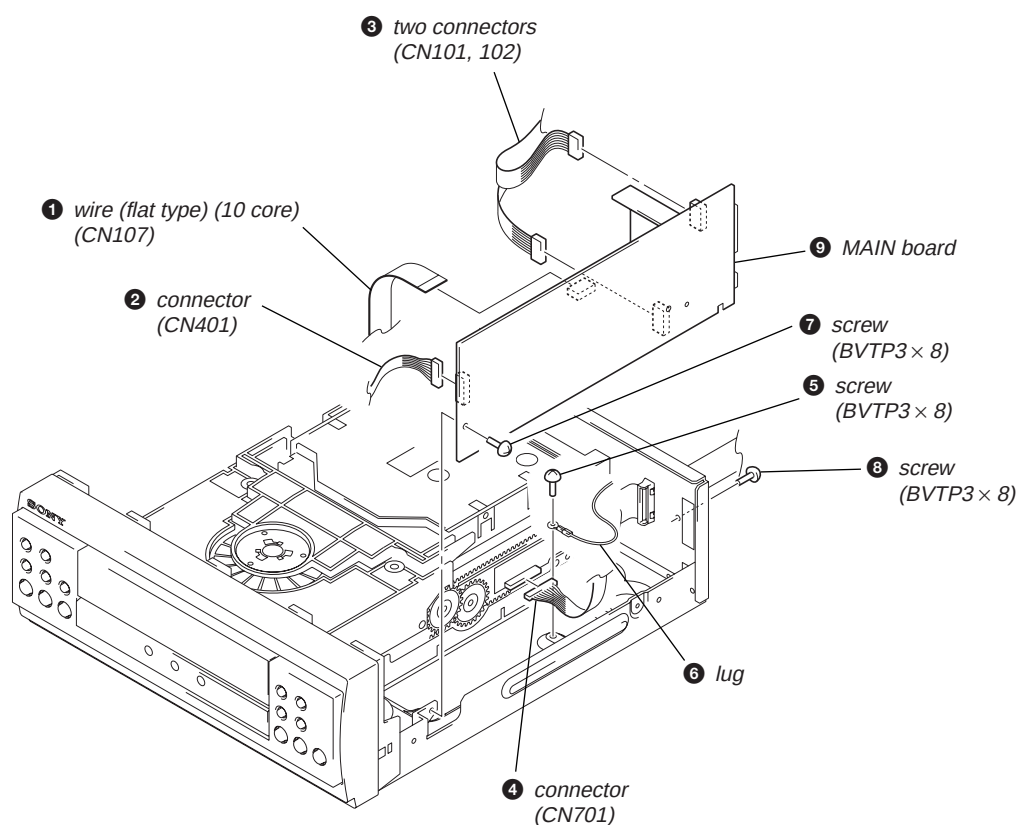
3-4. MB BOARD



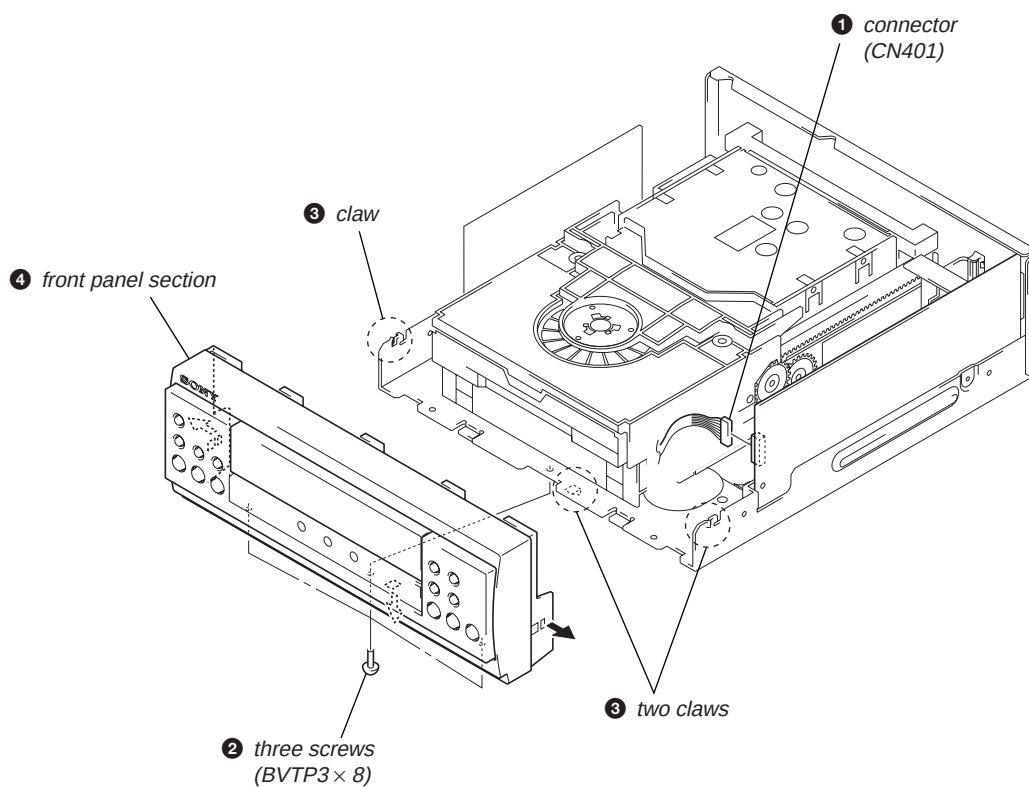
3-5. VIDEO BOARD



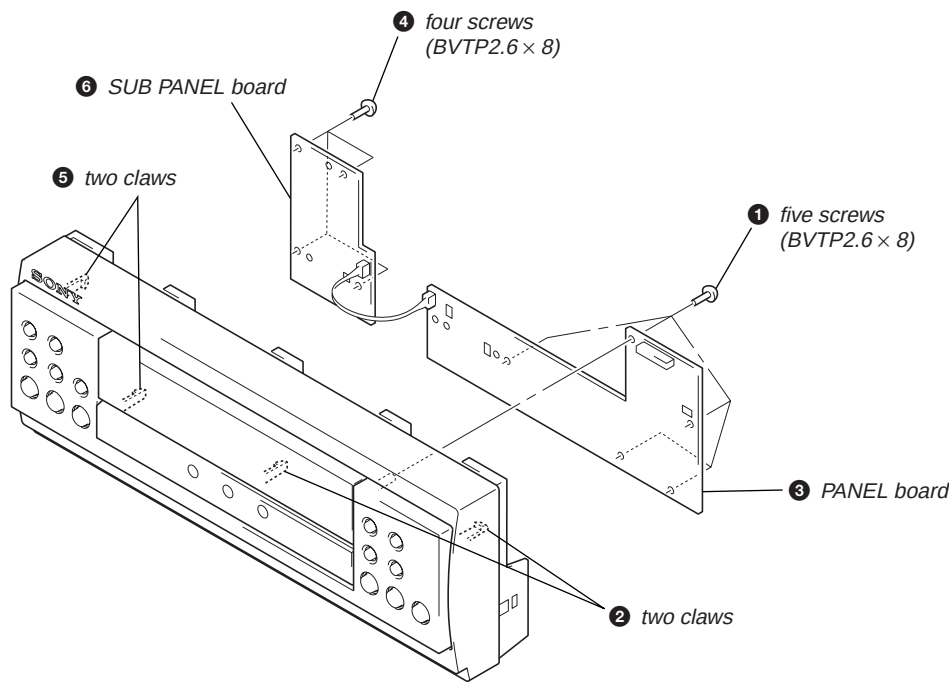
3-6. MAIN BOARD



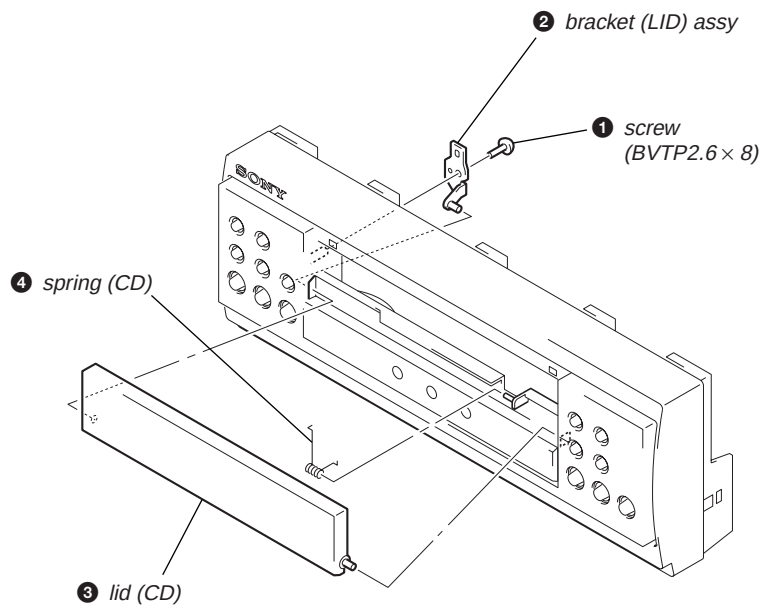
3-7. FRONT PANEL SECTION



3-8. PANEL BOARD, SUB PANEL BOARD



3-9. LID (CD)



SECTION 4

TEST MODE

Note: Use following buttons in the test mode.

no mark : Button of DVD/video CD/CD player (DVP-S9)

*1 : Button of A/V amplifier (TA-S9D)

*2 : Button of tuner (ST-S9)

[CHANGE-OVER THE COLOR SYSTEM]

- The color system can be changed over NTSC or PAL.

Procedure:

- Press the **I/⏻** *1 button to turn the power on.
- Turn the **FUNCTION** *1 knob to select "DVD", and press the **■** button.
- While pressing the both **RETURN** and **REPEAT** buttons, turn the power off.
- Press the **I/⏻** *1 button to turn the power on. The color system is changed over.

[COLD RESET]

- The cold reset clears all data including preset data stored in the RAM to initial conditions. Execute this mode when returning the set to the customer.

Procedure 1:

- Press the **I/⏻** *1 button to turn the power on.
- While pressing the both **PLAY MODE** and **■** buttons, press the **▶▶** button.
- The set is reset, and becomes standby state.

Procedure 2:

- Press the **I/⏻** *1 button to turn the power on.
- While pressing the **DIGITAL** *1 button, press the **DISPLAY** *2 button.
- The set is reset, and becomes standby state.

[DVD DELIVERY MODE]

- This mode moves the optical pick-up to the position durable to vibration. Use this mode when returning the set to the customer after repair.

Procedure:

- Press the **I/⏻** *1 button to turn the power on.
- Turn the **FUNCTION** *1 knob to select "DVD".
- While pressing the **EQ ON/OFF** *1 button, press the **I/⏻** *1 button.
- The message "LOCK" is displayed on the fluorescent indicator tube of tuner unit and turn the power off automatically, and the DVD delivery mode is set.

[GC TEST MODE]

Enter the GC Test Mode

Procedure 1:

- Press the **I/⏻** *1 button to turn the power on.
- While pressing the both **PLAY MODE** and **■** buttons, press the **▲** (DISC 1) button.
- LEDs and fluorescent indicator tube are all turned on of all units.

Procedure 2:

- Press the **I/⏻** *1 button to turn the power on.
- While pressing the both **STEREO/MONO** *2 and **CINEMA STUDIO C** *1 buttons, press the **CLOCK/TIMER** *2 button.
- LEDs and fluorescent indicator tube are all turned on of all units.

Version Display Mode

Procedure:

- Enter the GC test mode.
- Each time the **DISC 1** or **TUNER MEMORY** *2 button is pressed, microcomputer or mechanism deck version is displayed of each unit.
- Press the **DISC 3** or **TUNING +** *2 button to detail is displayed the version.

Key Check Mode

Procedure:

- Enter the GC test mode.
- Press the **DISC 2** or **TUNING -** *2 button to set the key check mode, and displays "K 0 J 0 V 0" on the fluorescent indicator tube of tuner unit.
- All buttons are pressed of video CD unit, all LEDs are blinking of video CD unit. (not change the display of fluorescent indicator tube)

Releasing the GC Test Mode

To release from this mode, press three buttons in the same manner as entering this mode or disconnect the power cord.

[DVD SERVICE MODE]

- This mode can run the DVD sled motor optionally. Use this mode, for instance, when cleaning the optical pick-up.

Procedure:

- Press the **I/⏻** *1 button to turn the power on.
- Turn the **FUNCTION** *1 knob to select "DVD".
- While pressing the both **PLAY MODE** and **■** buttons, press the **◀◀** button.
- Set to the DVD service mode.
- With the DVD in stop status, press the **▶▶** button to move the optical pick-up to outside track, or press the **◀◀** button to inside track.
- To release from this mode, perform as follows.
 - Move the optical pick-up to the most inside track.
 - Disconnect the power cord.

- Notes:**
- Always move the optical pick-up to most inside track when releasing from this mode. Otherwise, a disc will not be unloaded.
 - Do not run the sled motor excessively, otherwise the gear can be chipped.

[DVD CANCELLATION MODE OF REPEAT LIMITATION]

- This mode can cancel the DVD repeat limitation (5 times).

Procedure:

- Press the **I/⏻** *1 button to turn the power on.
- Turn the **FUNCTION** *1 knob to select "DVD".
- While pressing the both **PLAY MODE** and **■** buttons, press the **REPEAT** button.
- DVD repeat limitation is canceled.
- To release this mode, disconnect the power cord.

[DVD DISC TRAY LOCK MODE FOR BURGLARY PREVENTION]

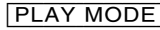
Procedure:

- Press the **I/⏻** *1 button to turn the power on.
- Turn the **FUNCTION** *1 knob to select "DVD".
- While pressing the both **PLAY MODE** and **■** buttons, press the **◀◀** button, turn the power off.

[GENERAL DESCRIPTION]

The Test Mode allows you to make diagnosis and adjustment easily using the remote commander and monitor TV. The instructions, diagnostic results, etc. are given on the on-screen display (OSD).

[STARTING TEST MODE]

1. Press the *¹ button to turn the power on.
2. Turn the *² knob to select "DVD".
3. While pressing the  and  button, press the  button to enter the test mode.
4. It displays "TEST MODE" on the fluorescent indicator tube, and displays the Test Mode Menu on the monitor screen as follows. (At the bottom of the menu screen, the model name and revision number are displayed)

```

Test Mode Menu

0. Syscon Diagnosis
1. Drive Auto Adjustment
2. Drive Manual Operation
3. Mecha Aging
4. Emergency History
5. Version Information
6. Video Level Adjustment
                                Exit: POWER Key
-
Model    : xxx-xxxx_xx
Revision : 1.xxx

```

5. To execute each function, select the desired menu and press its number on the remote commander (RM-SD390AV or RM-SD395AV).
6. To release from test mode, press the *¹ button and turn the power off.

[SYSCON DIAGNOSIS]

The same contents as board detail check by serial interface can be checked from the remote commander.

On the Test Mode Menu screen, press  key on the remote commander, and the following check menu will be displayed.

```

### Syscon Diagnosis ###
Check Menu

0. Quit
1. All
2. Version
3. Peripheral
4. Servo
5. Supply
6. AV Decoder
7. Video
8. Audio
-

```

0. Quit

Quit the Syscon Diagnosis and return to the Test Mode Menu.

1. All

All items continuous check

This menu checks all diagnostic items continuously. Normally, all items are checked successively one after another automatically unless an error is found, but at a certain item that requires judgment through a visual check to the result, the following screen is displayed for the key entry.

```

### Syscon Diagnosis ###

Diag All Check
No. 2 Version

2-3. ROM Check Sum
Check Sum = 2005

Press NEXT Key to Continue
Press PREV Key to Repeat
-

```

For the ROM Check, the check sum calculated by the Syscon is output, and therefore you must compare it with the specified value for confirmation.

Following the message, press  key to go to the next item, or  key to repeat the same check again. To quit the diagnosis and return to the Check Menu screen, press  or  key. If an error occurred, the diagnosis is suspended and the error code is displayed as shown below.

```

### Syscon Diagnosis ###

3-3. EEPROM Check
Error 03: EEPROM Write/Reed N
Address   : 00000001
Write Data : 2492
Read Data  : 2490
Press NEXT Key to Continue
Press PREV Key to Repeat
-

```

Press  key to quit the diagnosis, or  key to repeat the same item where an error occurred, or  key to continue the check from the item next to faulty item.

Selecting 2 and subsequent items calls the submenu screen of each item.

For example, if “5. Supply” is selected, the following submenu will be displayed.

```

    ### Syscon Diagnosis ###
      Check Menu
        No. 5 Supply
0. Quit
1. All
2. ARP Register Check
3. ARP to RAM Data Bus
4. ARP to RAM Address Bus
5. ARP RAM Check
—

```

0. Quit

Quit the submenu and return to the main menu.

1. All

All submenu items continuous check

This menu checks 2 and subsequent items successively. At the item where visual check is required for judgment or an error occurred, the checking is suspended and the message is output for key entry. Normally, all items are checked successively one after another automatically unless an error is found.

Selecting 2 and subsequent items executes respective menus and outputs the results.

For the contents of each submenu, see “Check Items List”.

General Description of Checking Method

2. Version

(2-2) Revision

ROM revision number is displayed.-

Error: Not detected.

The revision number defined in the source file of ROM (At the beginning of mass production, the Flash ROM of IC107 is used) is displayed with four digits.

(2-3) ROM Check Sum

Check sum is calculated.

Error: Not detected.

The 8-bit data are added at addresses 0x000F0000 ~ 0x002EFFFF of ROM (IC107) and the result is displayed with 4-digit hexadecimal number. Error is not detected. Compare the result with the specified value.

(2-4) Model Type

Model code is displayed.

Error: Not detected.

The model code read from EEPROM (IC101) is displayed with 2-digit hexadecimal number.

(2-5) Region

Region code is displayed.

Error: Not detected.

The region code determined from the model code is displayed.

3. Peripheral

(3-2) EEPROM Check

Data write → read, and accord check

Error 03: EEPROM write/read discord

Data 0x9249, 0x2942, 0x4294 are written to addresses 0x00~0xFF of EEPROM (IC101), then read and checked. Before writing, the data are saved, then after checking, they are written to restore the contents of EEPROM.

4. Servo

(4-2) Servo DSP Check

Data write → read, and accord check

Error 12: Read data discord

Data 0x9249, 0x2942, 0x4294 are written to the address 0x602 of RAM in the Servo DSP (IC302), then read and checked.

(4-3) DSP Driver Test

Test signal data → DSP Driver

Error: Not detected.

Caution: Do not conduct this test with a mechanical deck connected.

The maximum voltage is applied to the Servo Driver IC (IC401). If mechanical deck is connected, the motor and optics could be damaged. Disconnect mechanical deck following the output message, then enter specified 4- or 5-digit number from the remote commander, and press the **[ENTER]**. The test is conducted only when the input data accord. Check the output level, then press the **[▶▶]** to finish the test.

This test is skipped if “All” is selected.

Supplement: How to disconnect mechanical deck
Disconnect flat cables connected to the CN010 and CN015 of MB board. Also, disconnect harness from the CN203.

5. Supply

Caution: Do not conduct this check with a mechanical deck connected.

An access is made to the stream supply and servo control IC (IC302) and external RAM (IC303) using check data. If mechanical deck is connected, the motor and optics could be damaged. This check is also executed by the "All" menu item.

Supplement: How to disconnect mechanical deck

Disconnect flat cables connected to the CN010 and CN015 of MB board. Also, disconnect harness from the CN203.

(5-2) ARP Register Check

Data write → read, and accord check

Error 08: ARP register write, and read data discord

Data 0x00 to 0xFF are written to the TMAX register (address 0xC6) in ARP (IC302), then they are read and checked.

(5-3) ARP to RAM Data Bus

Data write → read, and accord check

Error 09: ARP ↔ RAM data bus error

Data 0x0001 to 0x8000 where one bit each is set to 1 are written to the address 0 of RAM (IC303) connected to the ARP (IC302) through the bus, then they are read and checked. In case of discord, written bit pattern and read data are displayed. If data where multiple bits are 1 are read, the bits concerned may touch each other. Further, if data where certain bit is always 1 or 0 regardless of written data, the line could be disconnected or shorted.

(5-4) ARP to RAM Address Bus

Data write → other address read discord check

Error 10: ARP → RAM address bus error

Caution: Address and data display in case of an error is different from the display of other diagnosis (described later).

Before starting the test, all addresses of RAM (IC303) are cleared to 0x0000.

First, 0xA55A is written to the address 0x00000, and the address data are read and checked from addresses 0x00001 to 0x80000 while shifting 1 bit each. Next, the data at that address is cleared, and it is written to the address 0x00001, and read and checked in the same manner. This check is repeated up to the address 0x80000 while shifting the address data by 1 bit each.

If data other than 0 is read at the addresses except written address, an error is given because all addresses were already cleared to 0. In this check, the error display pattern is different from that of other diagnosis; read data, written address, and read address are displayed in this order. However, the message uses same template, and accordingly exchange Address and Data when reading. The following display, for example,

```
### Syscon Diagnosis ###
```

```
5-4. ARP to RAM Address Bus  
Error 10: ARP - RAM Address B  
Address   : 0000A55A  
Write Data: 00000000  
Read Data : 00080000  
Press NEXT Key to Continue  
Press PREV Key to Repeat  
—
```

shows the data 0xA55A was read from address 0x00080000 though it was written to the address 0x00000000. This implies that these addresses are in the form of shadow. Also, if the read data is not 0xA55A, another error will be present.

(5-5) ARP RAM Check

Data write → read, and accord check

Error 11: ARP RAM read data discord

The program code data stored in ROM are copied to all areas of RAM (IC303) connected to the ARP (IC302) through the bus, then they are read and checked if they accord. If the detail check was selected initially, the data are written to all areas and read, then the same test is conducted once again with the data where all bits are inverted between 1 and 0. If discord is detected, faulty address, written data, and read data are displayed following the error code 11, and the test is suspended.

6. AV Decoder

- (6-2) 1930 RAM
Data write → read, and accord check
Error 13: AVD RAM read data discord
The program code data stored in ROM (IC107) are copied to all areas of RAM (IC504, IC505) connected to the AVD (IC503) through the bus, then they are read and checked if they accord. Further, the same test is conducted once again with the data where all bits are inverted between 1 and 0. If discord is detected, faulty address, written data, and read data are displayed following the error code 13, and the test is suspended.
- (6-3) 1930 SP
ROM → AVD RAM → Video OUT
Error: Not detected.
The data including sub picture streams in ROM (IC107) are transferred to the RAM (IC504, IC505) in AVD (IC503), and output as video signals from the AVD (IC503).
They are output from all video terminals (Composite, Y/C).

7. Video

- (7-2) Color Bar
AVD color bar command write → Video OUT
Error: Not detected.
The command is transferred to the AVD, and the color bar signals are output from video terminals.
They are output from all video terminals (Composite, Y/C).
- (7-3) Composit Out
- (7-4) Y/C Out
- (7-6) Component Out

8. Audio

- (8-2) ARP → 1930
Error 14 : ARP → 1930 video NG
15 : ARP → 1930 audio NG
- (8-3) Test Tone
All channels
2ch Left
2ch Right
Front Left
Front Right
Rear Left
Rear Right
Center
Sub Woofer

Check Items List

- 2) Version
(2-2) Revision
(2-3) ROM Check Sum
(2-4) Model Type
(2-5) Region
- 3) Peripheral
(3-2) EEPROM Check
- 4) Servo
(4-2) Servo DSP Check
(4-3) DSP Driver Test
- 5) Supply
(5-2) ARP Register Check
(5-3) ARP to RAM Data Bus
(5-4) ARP to RAM Address Bus
(5-5) ARP RAM Check
- 6) AV Decoder
(6-2) 1930 RAM
(6-3) 1930 SP
- 7) Video
(7-2) Color Bar
(7-3) Composit Out
(7-4) Y/C Out
(7-6) Component Out

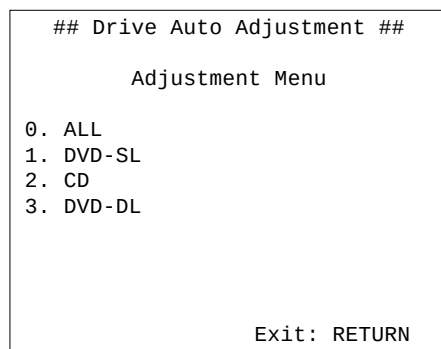
- 8) Audio
(8-2) ARP → 1930
(8-3) Test Tone

Error Codes List

- 00: Error not detected
01: RAM write/read data discord
02: Gate array NG
03: EEPROM NG
08: ARP register read data discord
09: ARP ↔ RAM data bus error
10: ARP ↔ RAM address bus error
11: ARP RAM read data discord
12: Servo DSP NG
13: 1930 SDRAM NG
14: ARP → 1930 video NG
15: ARP → 1930 audio NG
16: 1910 UCODE download NG
17: System call error (function not supported)
18: System call error (parameter error)
19: System call error (illegal ID number)
20: System call error (time out)
90: Error occurred
91: User verification NG
92: Diagnosis cancelled

[DRIVE AUTO ADJUSTMENT]

On the Test Mode Menu screen, press [1] key on the remote commander, and the drive auto adjustment menu will be displayed.



Normally, [10/0] is selected to adjust DVD (single layer), CD and DVD (dual layer). But, individual items can be adjusted for the case where adjustment is suspended due to an error. In this mode, the adjustment can be made easily through the operation following the message displayed on the screen.

The disc used for adjustment must be the one specified for adjustment.

0. ALL

Select [10/0] and press [ENTER] key, and the servo set data in EEPROM will be initialized. Then, 1. DVD-SL disc, 2. CD disc and 3. DVD-DL disc are adjusted in this order. Each time one disc was adjusted, it is ejected. Replace it with the specified disc following the message. You can finish the adjustment if pressing the [■] button. During adjustment of each disc, the measurement for disc type judgment is made. As automatic adjustment does not judge the disc type unlike conventional models, take care not to insert wrong type discs. Also, do not give a shock during adjustment.

1. DVD-SL (single layer)

Select [1], insert DVD single layer disc, and press [ENTER] key, and the adjustment will be made through the following steps, then adjusted values will be written to the EEPROM.

DVD Single Layer Disc Adjustment Steps

1. SLED TILT Reset
2. Disc Check Memory SL
3. Wait 300 msec
4. Set Disc Type SL
5. LD ON
6. Spdl Start
7. Wait 1 sec
8. Focus Servo ON 0
9. Auto Track Offset Adjust
10. CLVA ON
11. Wait 500 msec
12. Tracking ON
13. Wait 1 sec
14. Sled ON
15. Check CLV Lock
16. Auto LFO Adjust
17. Auto Focus Offset Adjust
18. Auto Tilt Position Adjust
19. Auto Focus Gain Adjust
20. Auto Focus Offset Adjust
21. EQ Boost Adjust
22. Auto LFO Adjust
23. Auto Track Gain Adjust, Search Check
24. 32Tj Fwd
25. 32Tj Rev
26. 500Tj Fwd
27. 500Tj Rev
28. All Servo Stop
29. Eep Copy Loop Filter Offset

2. CD

Select [2], insert CD disc, and press [ENTER] key, and the adjustment will be made through the following steps, then adjusted values will be written to the EEPROM.

CD Adjustment Steps

1. Sled Tilt Rest
2. Disc Check Memory CD
3. Wait 500 msec
4. Set Disc Type CD
5. LD ON
6. Spdl Start
7. Wait 500 msec
8. Focus Servo ON 0
9. Auto Track Offset Adjust
10. CLVA ON
11. Wait 500 msec
12. Tracking ON
13. (TC Display Start)
14. Wait 1 sec
15. Jitter Display Start
16. Sled ON
17. Check CLV ON
18. Auto LFO Adjust
19. Auto Focus Offset Adjust
- 20.
21. Auto Focus Gain Adjust
22. Auto Focus Offset Adjust
23. Eq Boost Adjust
24. Auto LFO Adjust
25. Auto Track Gain Adjust, Search Check
26. 32Tj Fwd
27. 32Tj Rev
28. 500Tj Fwd
29. 500Tj Rev
30. All Servo Stop

3. DVD-DL (dual layer)

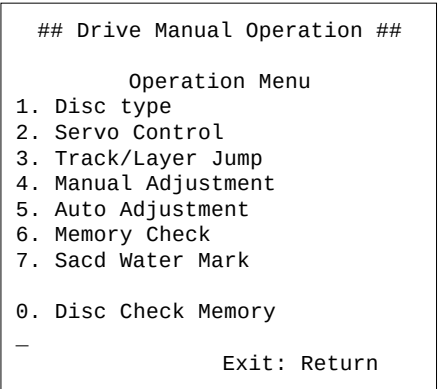
Select [3], insert DVD dual layer disc, and press [ENTER] key, and the adjustment will be made through the following steps, then adjusted values will be written to the EEPROM.

DVD Dual Layer Disc Adjustment Steps

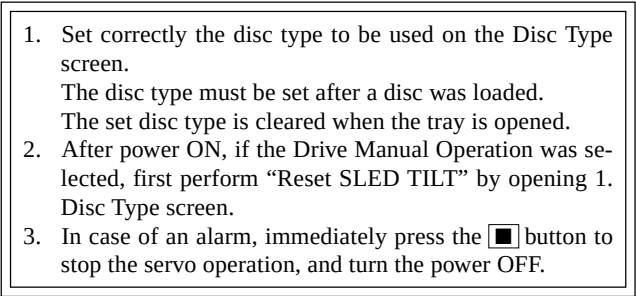
1. Sled Tilt Reset
2. Disc Check Memory DL
3. Wait 500 msec
4. Set Disc Type DL
5. LD ON
6. Spdl Start
7. Wait 1 sec, Layer 1 Adjust
8. Focus Servo ON 0
9. Auto Track Offset Adjust
10. Clva ON
11. Wait 500 msec
12. Tracking ON
13. Wait 500 msec
14. Sled ON
15. Check CLV Lock
16. Auto Loop Filter Offset Auto Focus Adjust
- 17.
18. Auto Focus Gain Adjust
19. Auto Focus Offset Adjust
20. Eq Boost Adjust
21. Auto Loop Filter Offset
22. Auto Track Gain Adjust, Search Check
23. 32Tj Fwd
24. 32Tj Rev
25. 500Tj Fwd
26. 500Tj Rev, Layer 0 Adjust
27. Fj (L1 -> L0)
28. Auto Track Offset Adjust L0
29. Clva ON
30. Wait 500 msec
31. Tracking ON
32. Wait 500 msec
33. Sled ON
34. Check CLV Lock
35. Auto Focus Filter Offset
36. Auto Focus Adjust
- 37.
38. Auto Focus Gain Adjust
39. Auto Focus Offset Adjust
40. Eq Boost Adjust
41. Auto Loop Filter Offset
42. Auto Track Gain Adjust, Search Check
43. 32Tj Fwd
44. 32Tj Rev
45. 500Tj fwd
46. 500Tj Rev, Layer Jump Check
47. Lj (L0 -> L1)
48. Lj (L1 -> L0)
49. All Servo Stop

[DRIVE MANUAL OPERATION]

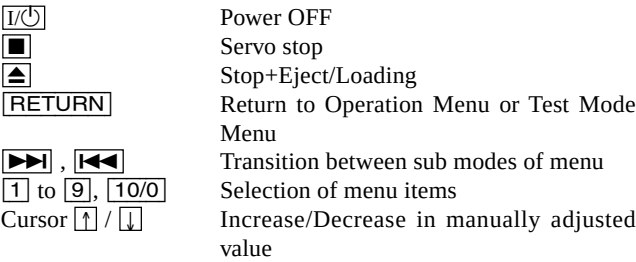
On the Test Mode Menu screen, select [2], and the manual operation menu will be displayed. For the manual operation, each servo on/off control and adjustment can be executed manually.



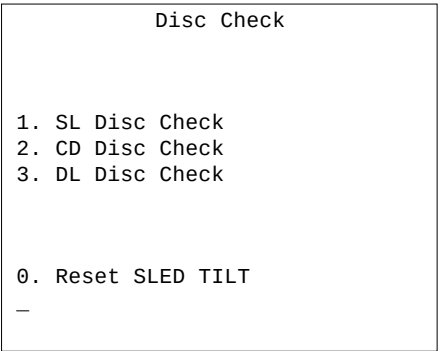
In using the manual operation menu, take care of the following points. These commands do not provide protection, thus requiring correct operation. The sector address or time code field is displayed when a disc is loaded.



Basic operation (controllable from front panel or remote commander)



0. Disc Check Memory



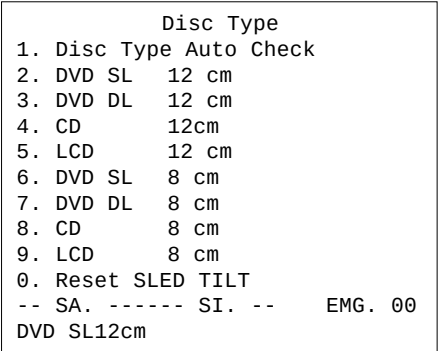
On this screen, the mirror time is measured to judge the disc and it is written to the EEPROM. First load DVD SL disc and press [1], next load CD disc and press [2], and finally load DVD DL disc and press [3].

The adjustment must be executed more than once after default data were written. External vibration or shock to the player must not be given. Reference value for DVD is from 10 to 20, and for CD, from 28 to 4F.

Check that the value of CD is larger than that of DVD. When those values are beyond a range perform this adjustment again.

From this screen, you can go to another mode by pressing [Next] or [Previous] key, but you cannot enter this mode from another mode. You can enter this mode from the Operation Menu screen only.

1. Disc Type



On this screen, select the disc type. To select the disc type, press the number of the loaded disc. The selected disc type is displayed at the bottom. Selecting [1] automatically selects and displays the disc type. In case of wrong display, retry "Disc Check Memory". Also, opening the tray causes the set disc type to be cleared. In this case, set the disc type again after loading.

In performing manual operation, the disc type must be set. Once the disc type has been selected, the sector address or time code display field will appear as shown below. These values are displayed when PLL is locked.

```

Disc Type
1. Disc Type Auto Check
2. DVD SL 12 cm
3. DVD DL 12 cm
4. CD 12cm
5. LCD 12 cm
6. DVD SL 8 cm
7. DVD DL 8 cm
8. CD 8 cm
9. LCD 8 cm
0. Reset SLED TILT
   SA.      SI.      EMG. 00
DVD SL 12 cm

```

Display when DVD SL 12cm disc was selected

```

Disc Type
1. Disc Type Auto Check
2. DVD SL 12 cm
3. DVD DL 12 cm
4. CD 12cm
5. LCD 12 cm
6. DVD SL 8 cm
7. DVD DL 8 cm
8. CD 8 cm
9. LCD 8 cm
0. Reset SLED TILT
   TC. —: —: — EMG. 00
CD 12 cm

```

Display when CD 12cm disc was selected

- [0] Reset SLED TILT Reset the Sled and Tilt to initial position.
- [1] Disk Type Check Judge automatically the loaded disc. As the judged result is displayed at the bottom of screen, make sure that it is correct.
If Disc Check Memory menu has not been executed after EEPROM default setting, the disc type cannot be judged. In this case, return to the initial menu and make a check for three types of discs (SL, DL, CD).
- [2] to [9] Select the loaded disc. The adjusted value is written to the address of selected disc. No further entry is necessary if [1] was selected.

2. Servo Control

```

Servo Control
1. LD      Off R.Sled FWD
2. SP      Off L.Sled REV
3. Focus   Off
4. TRK.    Off
5. Sled     Off
6. CLVA     Off
7. FCS. Srch Off

0. Reset SLED TILT
   SA. ——— SI. — EMG. 00
DVD SL 12 cm

```

On this screen, the servo on/off control necessary for replay is executed. Normally, turn on each servo from 1 sequentially and when CLVA is turned on, the usual trace mode becomes active. In the trace mode, DVD sector address or CD time code is displayed. This is not displayed where the spindle is not locked. The spindle could run overriding the control if the spindle system is faulty or RF is not present. In such a case, do not operate CLVA.

- [10/0] Reset SLED TILT Reset the Sled and Tilt to initial position.
- [1] LD Turn ON/OFF the laser.
- [2] SP Turn ON/OFF the spindle.
- [3] Focus Search the focus and turn on the focus.
- [4] TRK Turn ON/OFF the tracking servo.
- [5] Sled Turn ON/OFF the sled servo.
- [6] CLVA Turn ON/OFF normal servo of spindle servo.
- [7] FCS. Srch Apply same voltage as that of focus search to the focus drive to check the focus drive system.
- Sled FWD Move the sled outward. Perform this operation with the tracking servo turned off.
- ← Sled REV Move the sled inward. Perform this operation with the tracking servo turned off.
- ↑ Tilt UP Move the tilt upward.
- ↓ Tilt DOWN Move the tilt downward.

The following menus are normally not used.

3. Track/Layer Jump

4. Manual Adjustment

5. Auto Adjustment

The persons who do not know well about these menus should not use them.

6. Memory Check

EEPROM Data1					
	-- DL --				
	CD LCD	SL	L0	L1	
Focus Gain	xx xx	xx xx	xx	xx	xx
TRK. Gain	xx xx	xx xx	xx	xx	xx
FCS Balance	xx xx	xx xx	xx	xx	xx
Focus Bias	xx xx	xx xx	xx	xx	xx
TRV. Offset	xx xx	xx xx	xx	xx	xx
L. F. Offset	xx xx	xx xx	xx	xx	xx
EQ Boost	xx xx	xx xx	xx	xx	xx
Mirror Time	xx xx	xx xx	xx	xx	xx
_DOWN: Next Data					
CLEAR: Default Set page.1/2					

EEPROM Data1					
	-- DL --				
	CD LCD	SL	L0	L1	
RF Jitter	xx --	xx xx	xx	xx	xx
RF Level	xx --	xx --	--	--	--
FE Level	xx --	xx --	--	--	--
FE Balance	xx --	xx --	--	--	--
TRV. Level	xx --	xx --	--	--	--
Analog FRSW	xx xx	xx xx	xx	xx	xx
PLL DacGain	xx xx	xx xx	xx	xx	xx
_UP : Prev Data					
CLEAR: Default Set page.2/2					

This screen displays current servo adjusted data stored in the EEPROM. Though adjusted data can be initialized with the **[CLEAR]** key, they cannot be restored after initialization. So, before clearing, make a note of the adjusted data. For reference, the drive has been designed so that the gain center value is 20 and offset value is 80. Other values will be in a range of 10 to 80. If extreme value such as 00 or FF is set, adjustment will be faulty. In such a case, check for disc scratch or cable disconnection, then perform adjustment again.

[MECHA AGING]

### Mecha Aging ###	
Press OPEN Key	
Abort: STOP key	

On the Test Mode Menu Screen, selecting **[3]** executes the aging of the mechanism. Start aging with PLAY. During aging, the repeat cycle is displayed. Aging can be aborted at any time by pressing the **[■]** key. After the operation is stopped, press the **[■]** key or **[RETURN]** key again to return to the Test Mode Menu. SEARCH Aging is only for a CD.

[EMERGENCY HISTORY]

### EMG. History ###			
Laser Hours	CD	xxxxxxxh	
	DVD	xxxxxxxh	
1.	00 00 00 00	00 00 00 00	
	00 00 00 00	00 00 00 00	
2.	00 00 00 00	00 00 00 00	
	00 00 00 00	00 00 00 00	
Select: 1 - 9 Scroll: UP/DOWN			
(1: Last EMG.) Exit: RETURN			

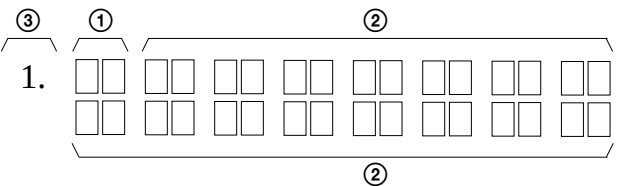
On the Test Mode Menu screen, selecting **[4]** displays the information such as servo emergency history. The history information from last 1 up to 10 can be scrolled with **[↑]** key or **[↓]** key. Also, specific information can be displayed by directly entering that number with ten keys.

The upper two lines display the laser ON total hours. Data below minutes are omitted.

Clearing History Information

- Clearing laser hours
 - Press **[DVD DISPLAY]** and **[CLEAR]** keys in this order. Both CD and DVD data are cleared.
- Clearing emergency history
 - Press **[TITLE]** and **[CLEAR]** keys in this order. Initializing set up data
- Initializing set up data
 - Press **[DVD SET UP]** and **[CLEAR]** keys in this order. The data have been initialized when “Set Up Initialized” message is displayed. The EMG. History screen will be restored soon.

How to see Emergency History



- ① : Emergency Code
- ② : Don't Care
 - These codes are used for verification of software designing.
- ③ : Historical order 1 to 9

Emergency Codes List

- 10: Communication to IC001 (RF board) failed.
- 11: Each servo for focus, tracking, and spindle is unlocked.
- 12: Communication to EEPROM, IC101 (MB board) failed.
- 13: Writing of hours meter data to EEPROM, IC101 (MB board) failed.
- 14: Communication to Servo DSP IC302 (MB board) failed, or Servo DSP is faulty.
- 20: Initialization of tilt servo and sled servo failed. They are not placed in the initial position.
- 21: Tilt servo operation error
- 22: Syscon made a request to move the tilt servo to wrong position.
- 23: Sled servo operation error
- 24: Syscon made a request to move the sled servo to wrong position.
- 30: Tracking balance adjustment error
- 31: Tracking gain adjustment error
- 32: Focus balance adjustment error
- 33: Focus bias adjustment error
- 34: Focus gain adjustment error
- 35: Tilt servo adjustment error
- 36: RF equalizer adjustment error
- 37: RF group delay adjustment error
- 38: Jitter value after adaptive servo operation is too large.
- 40: Focus servo does not operate.
- 41: With a dual layer (DL) disc, focus jump failed.50: CLV (spindle) servo does not operate.
- 51: Spindle does not stop.
- 60: With a DVD disc, Syscon made a request to seek nonexistent address.
- 61: With a CD disc, Syscon made a request to seek nonexistent address.
- 62: With a CD disc, Syscon made a request to seek nonexistent track No. and index No.
- 63: With a DVD disc, seeking of target address failed.
- 64: With a CD disc, seeking of target address failed.
- 65: With a CD disc, seeking of target index failed.
- 70: With a DVD disc, physical information data could not be read.
- 71: With a CD disc, TOC data could not be read.
- 80: Disc type judgment failed.
- 81: As disc type judgment failed, retry was repeated.
- 82: As disc type judgment failed, a measurement error occurred.
- 83: Disc type could not be judged within the specified time.
- 84: Illegal command code was received from Syscon.
- 85: Illegal command was received from Syscon.

[VERSION INFORMATION]

```
## Version Information ##

IF con.      Ver: x. xxx (xxxx)
              Group    00

SYScon.      Ver: x. xxx (xxxx)
              Model    xx
              Region   0x

Servo DSP Ver:X.XXX
OPT Type:2 Laser

Exit: RETURN
```

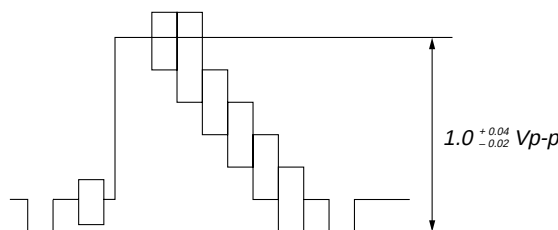
On the Test Mode Menu screen, selecting [5] displays the ROM version and region code.

The parenthesized hexadecimal number in version field is checksum value of ROM.

[VIDEO LEVEL ADJUSTMENT]

On the Test Mode Menu screen, selecting [6] displays color bars for video level adjustment. During display of color bars, OSD disappears but the menu screen will be restored if pressing any key.

Measurement point : VIDEO OUT jack
(75 Ω terminating resistance)
Measuring instrument : Oscilloscope
Adjustment device : RV501 on MB board
Specified value : $1.0^{+0.04}_{-0.02}$ Vpp



SECTION 5 ELECTRICAL ADJUSTMENTS

Note: During diagnostic check, the characters and color bars can be seen only with the NTSC monitor. Therefore, for diagnostic check, use the monitor that supports both NTSC and PAL modes

Instruments required:

- 1) Color monitor TV
- 2) Oscilloscope 1 or 2 phenomena, band width over 100 MHz, with delay mode
- 3) DVD reference disc
HLX-501 (J-6090-071-A) (dual layer) (NTSC)
HLX-503 (J-6090-069-A) (single layer) (NTSC)
HLX-504 (J-6090-088-A) (single layer) (NTSC)
HLX-505 (J-6090-089-A) (dual layer) (NTSC)
HLX-506 (J-6090-077-A) (single layer) (PAL)
HLX-507 (J-6090-078-A) (dual layer) (PAL)

AUTO SERVO ADJUSTMENT

After parts related to the servo circuit (RF amplifier (IC001), DSP (IC302), motor driver (IC401), EEPROM (IC101) so on) are replaced, re-adjusting the servo circuit is necessary. Select "ALL" at "DRIVE AUTO ADJUSTMENT" (Refer to page 16 in TEST MODE) and adjust DVD-SL (single layer), CD and DVD-DL (dual layer).

VIDEO LEVEL ADJUSTMENT

<Purpose>

This adjustment is made to satisfy the NTSC/PAL standard, and if not adjusted correctly, the brightness will be too large or small.

Signal	Color bars
Test point	VIDEO OUT jack (75 Ω terminated)
Instrument	Oscilloscope
Adjusting element	RV501 (MB board)
Specified Value	1.0 ± 0.04 -0.02 Vp-p

Procedure:

1. Press the $\square$ button to turn the power on, and turn the $\square$ knob to select "DVD" of A/V amplifier (TA-S9D).
2. Adjust the RV501 on the MB board to attain 1.0 ± 0.04
 -0.02 Vp-p.



Figure 5-1

CHECKING S VIDEO OUTPUT S-Y

<Purpose>

Check S-terminal video output. If it is incorrect, pictures will not be displayed correctly in spite of connection to the TV with a S-terminal cable.

Signal	Color bars
Test point	S VIDEO OUT (S-Y) jack (75 Ω terminated)
Instrument	Oscilloscope
Specified Value	1.0 ± 0.05 Vp-p

Procedure:

1. Press the $\square$ button to turn the power on, and turn the $\square$ knob to select "DVD" of A/V amplifier (TA-S9D).
2. Confirm that the S-Y level is 1.0 ± 0.05 Vp-p.



Figure 5-2

CHECKING S VIDEO OUTPUT S-C

<Purpose>

This checks whether the S-C satisfies the NTSC Standard. If it is not correct, the colors will be too dark or light.

Signal	Color bars
Test point	S VIDEO OUT (S-C) jack (75 Ω terminated)
Instrument	Oscilloscope
Specified Value	286 ± 30 mVp-p (NTSC) 300 ± 100 mVp-p (PAL)

Procedure:

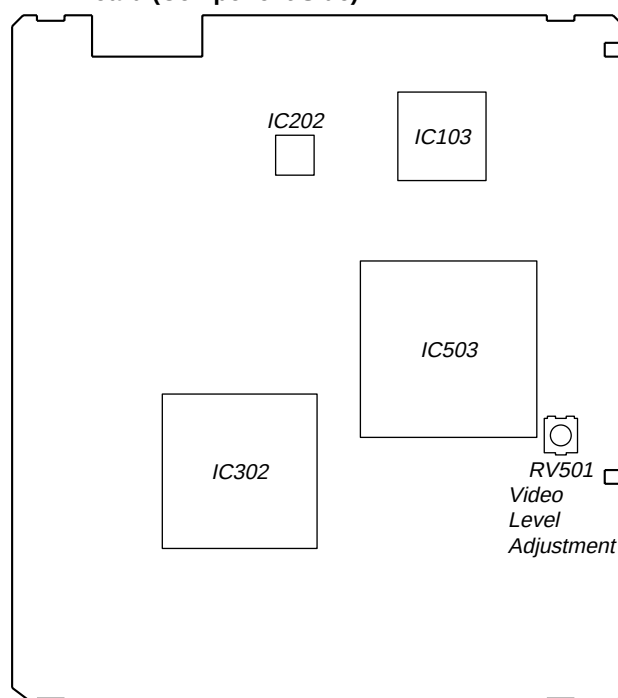
1. Press the $\square$ button to turn the power on, and turn the $\square$ knob to select "DVD" of A/V amplifier (TA-S9D).
2. Confirm that the S-C burst is 286 ± 30 mVp-p (NTSC) or 300 ± 100 mVp-p (PAL).



Figure 5-3

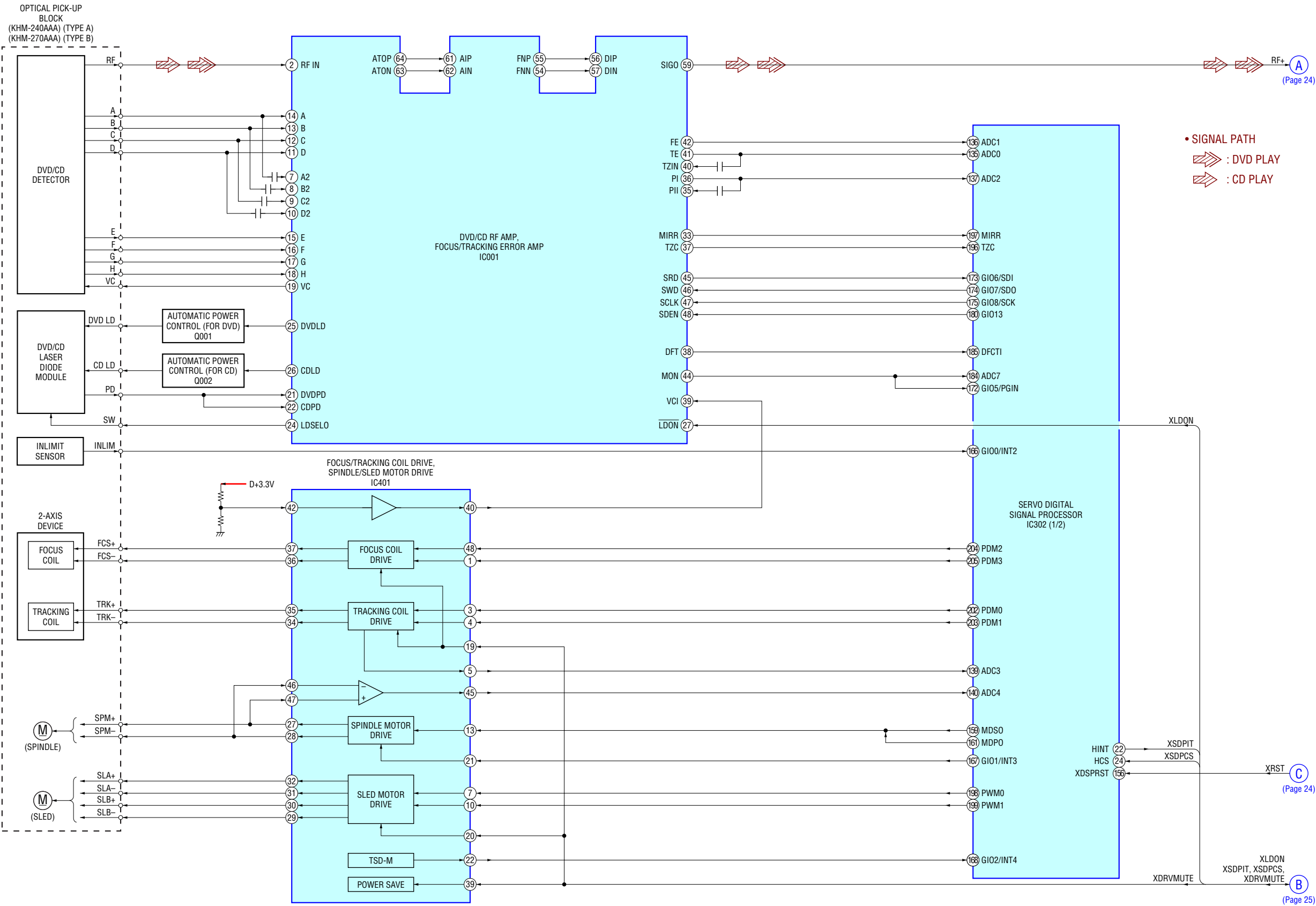
Adjustment Location :

– MB Board (Component Side) –

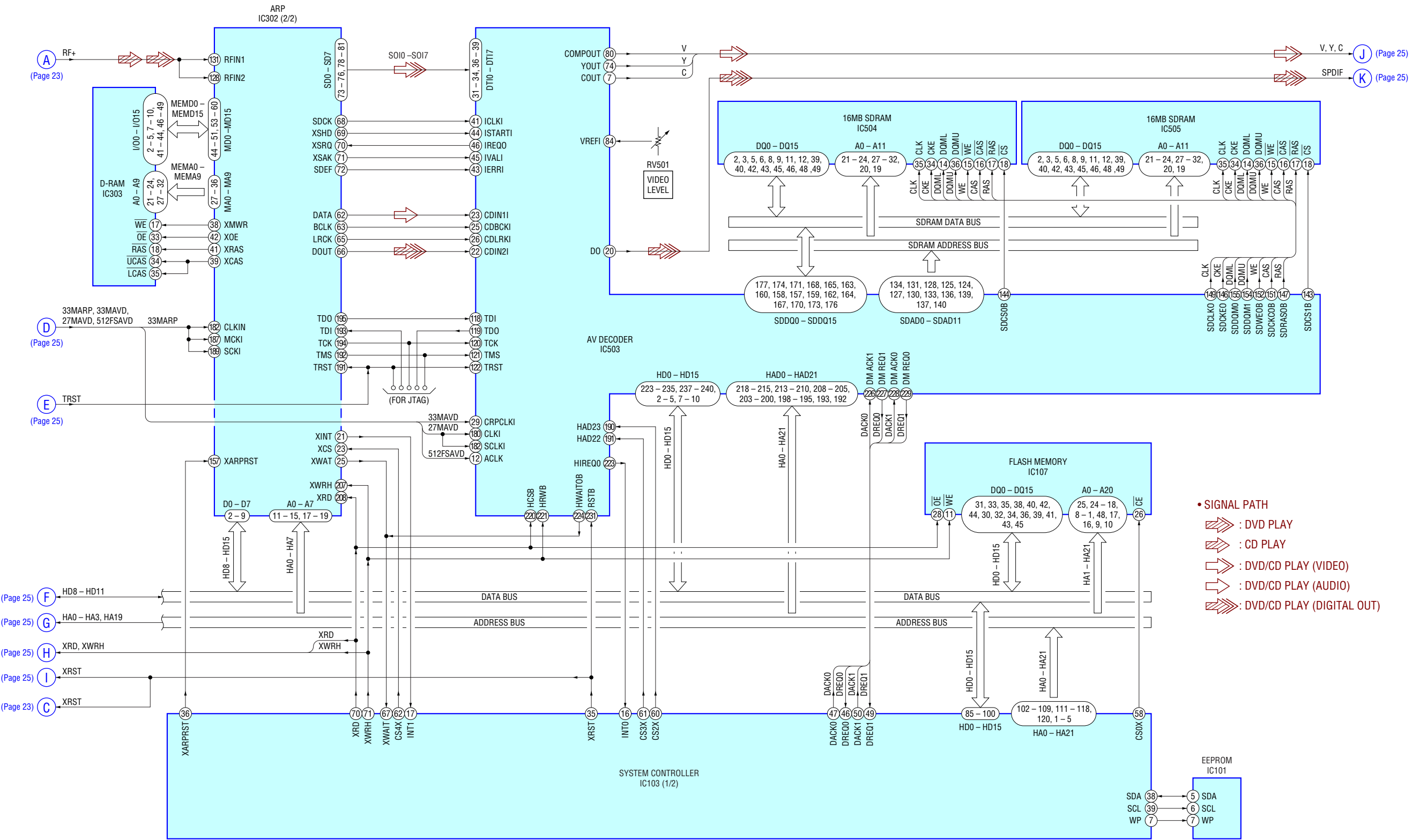


SECTION 6
DIAGRAMS

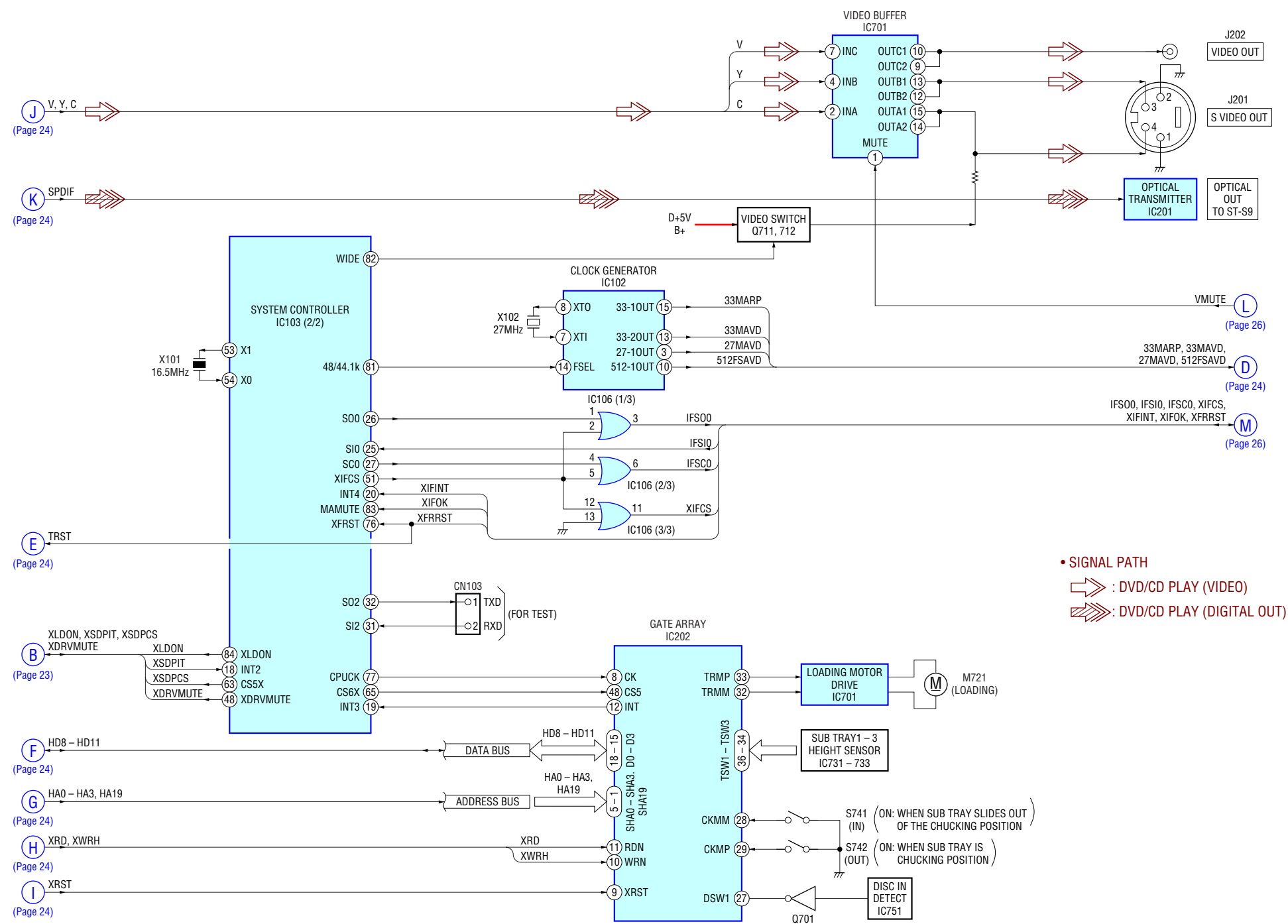
6-1. BLOCK DIAGRAM – RF/SERVO Section – • Refer to servicing notes (page 4) for discrimination of TYPE A/B.



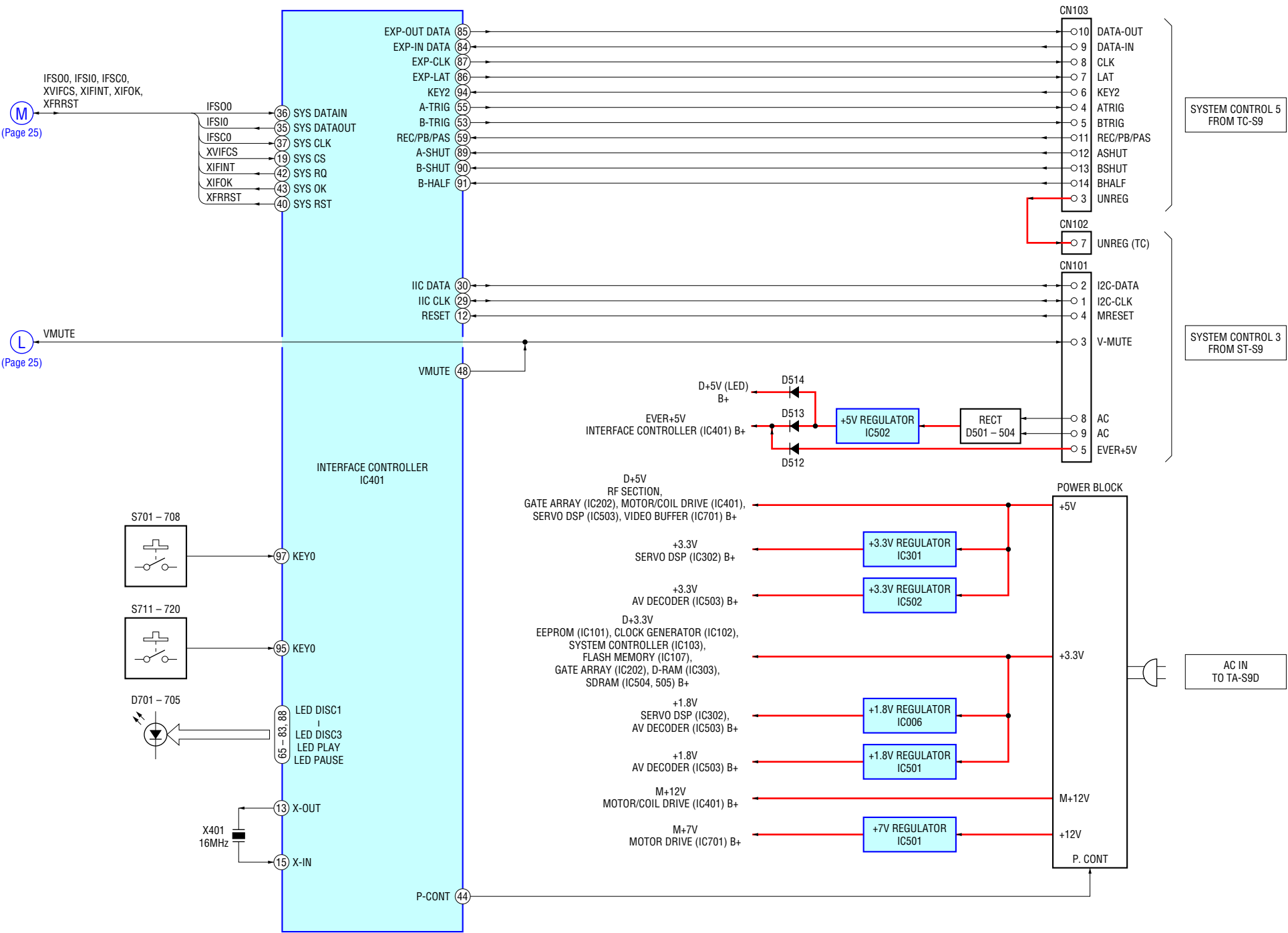
6-2. BLOCK DIAGRAM – MAIN Section (1/2) –



6-3. BLOCK DIAGRAM – MAIN Section (2/2) –



6-4. BLOCK DIAGRAM – INTERFACE CONTROL Section –



6-5. NOTE FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

Note on Printed Wiring Board:

- : parts extracted from the component side.
- : parts extracted from the conductor side.
- △ : internal component.
- : Pattern from the side which enables seeing.

Caution:
Pattern face side: Parts on the pattern face side seen from
(Conductor Side) the pattern face are indicated.
Parts face side: Parts on the parts face side seen from
(Component Side) the parts face are indicated.

- MB board is multi-layer board.
However, the patterns of intermediate-layer not been included in diagram.

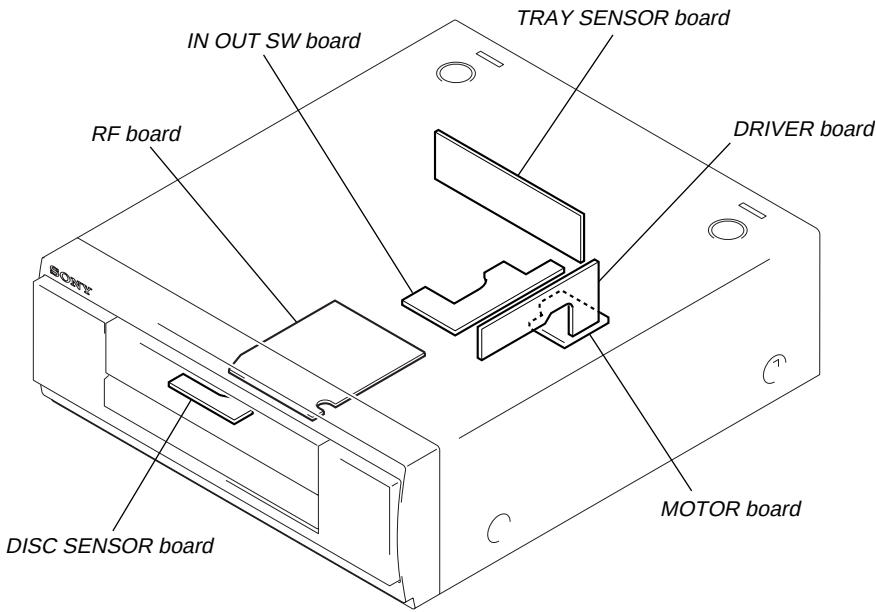
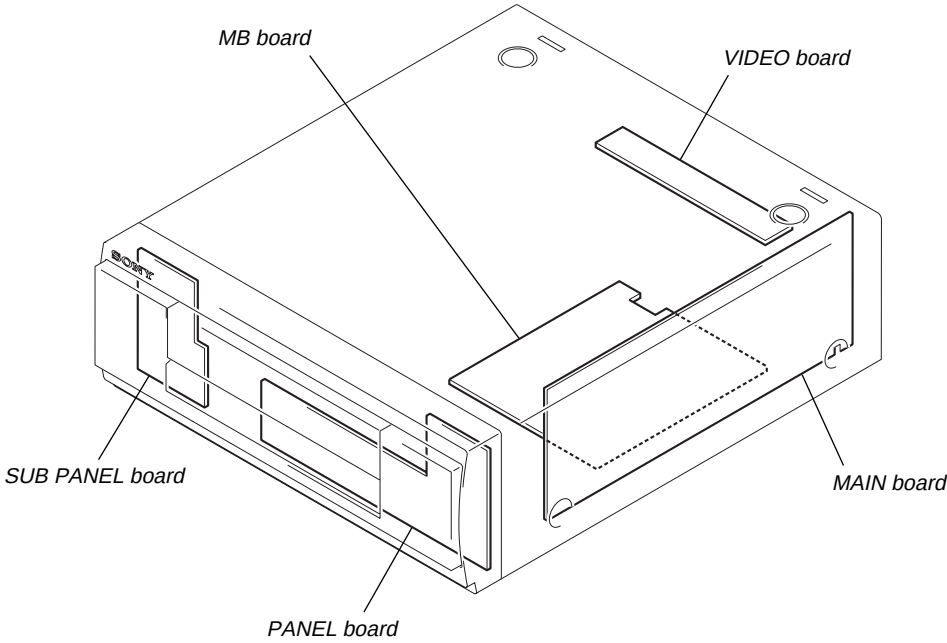
Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: μF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $\frac{1}{4}\text{W}$ or less unless otherwise specified.
- △ : internal component.
- □ : panel designation.

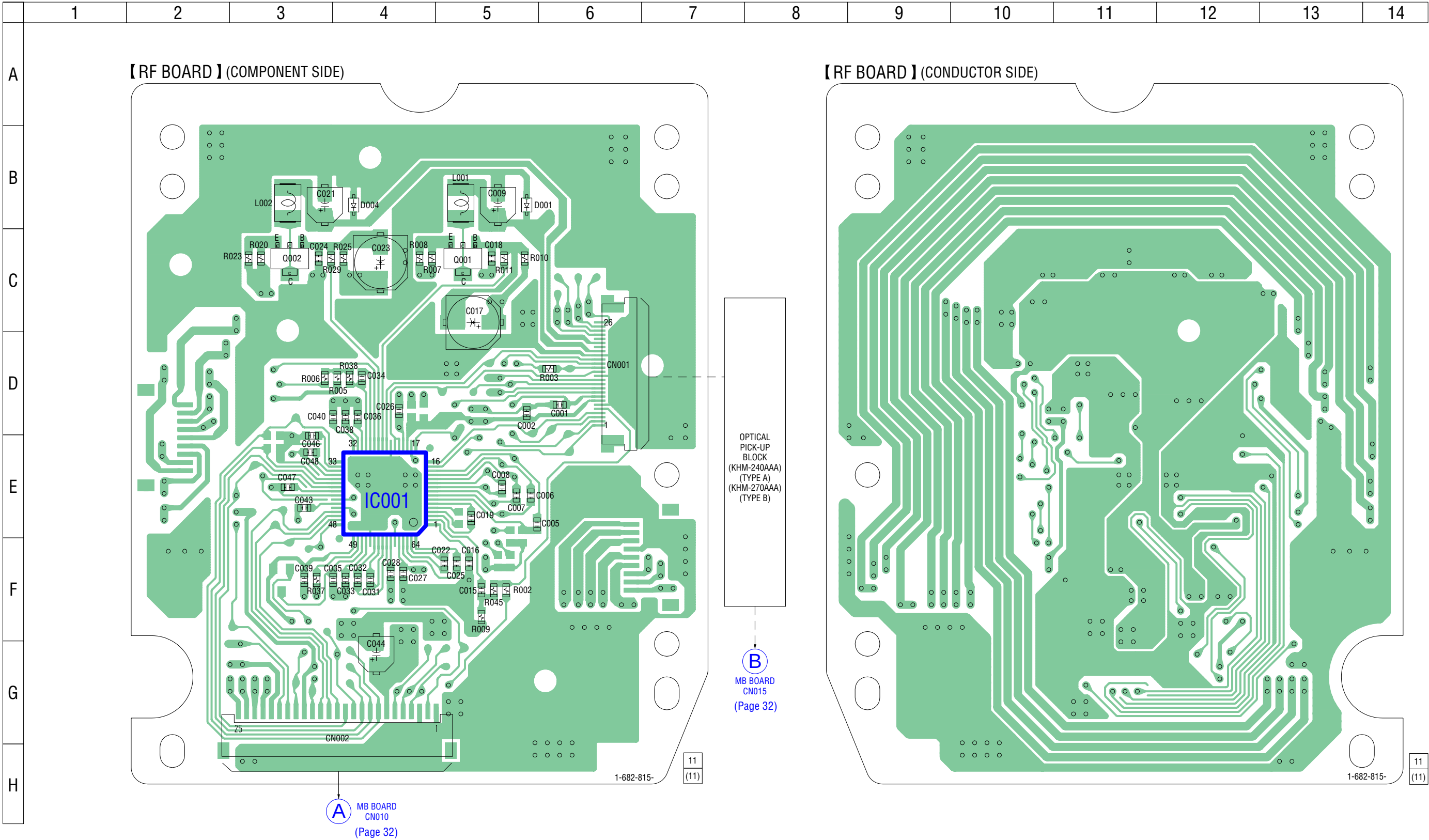
Note: The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

- — : B+ Line.
- □ : adjustment for repair.
- Voltages and waveforms are dc with respect to ground under no-signal conditions.
no mark : DVD PLAY
() : CD PLAY
- Voltages are taken with a VOM (Input impedance 10 M Ω).
Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
⇒ : DVD PLAY
⇒ : CD PLAY
⇒ : DVD/CD PLAY (VIDEO OUT)
⇒ : DVD/CD PLAY (AUDIO OUT)
⇒ : DVD/CD PLAY (DIGITAL OUT)
- Abbreviation
AUS : Australian model
EA : Saudi Arabia model
KR : Korean model
MX : Mexican model
SP : Singapore model
TH : Thai model
- Refer to servicing notes (page 4) for discrimination of TYPE A/B.

• Circuit Boards Location



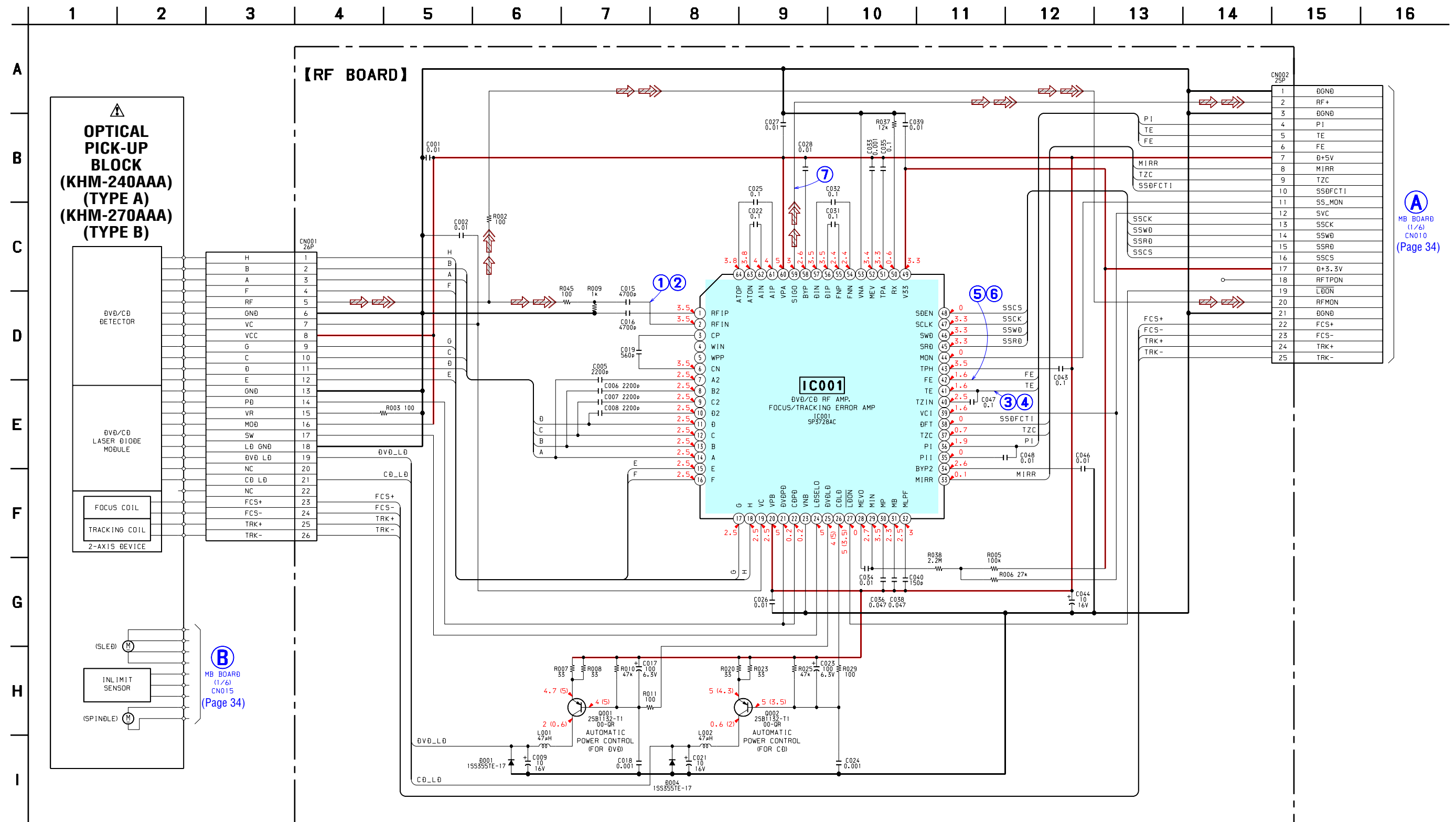
6-6. PRINTED WIRING BOARD – RF Board – • See page 27 for Circuit Boards Location. • Refer to servicing notes (page 4) for discrimination of TYPE A/B.



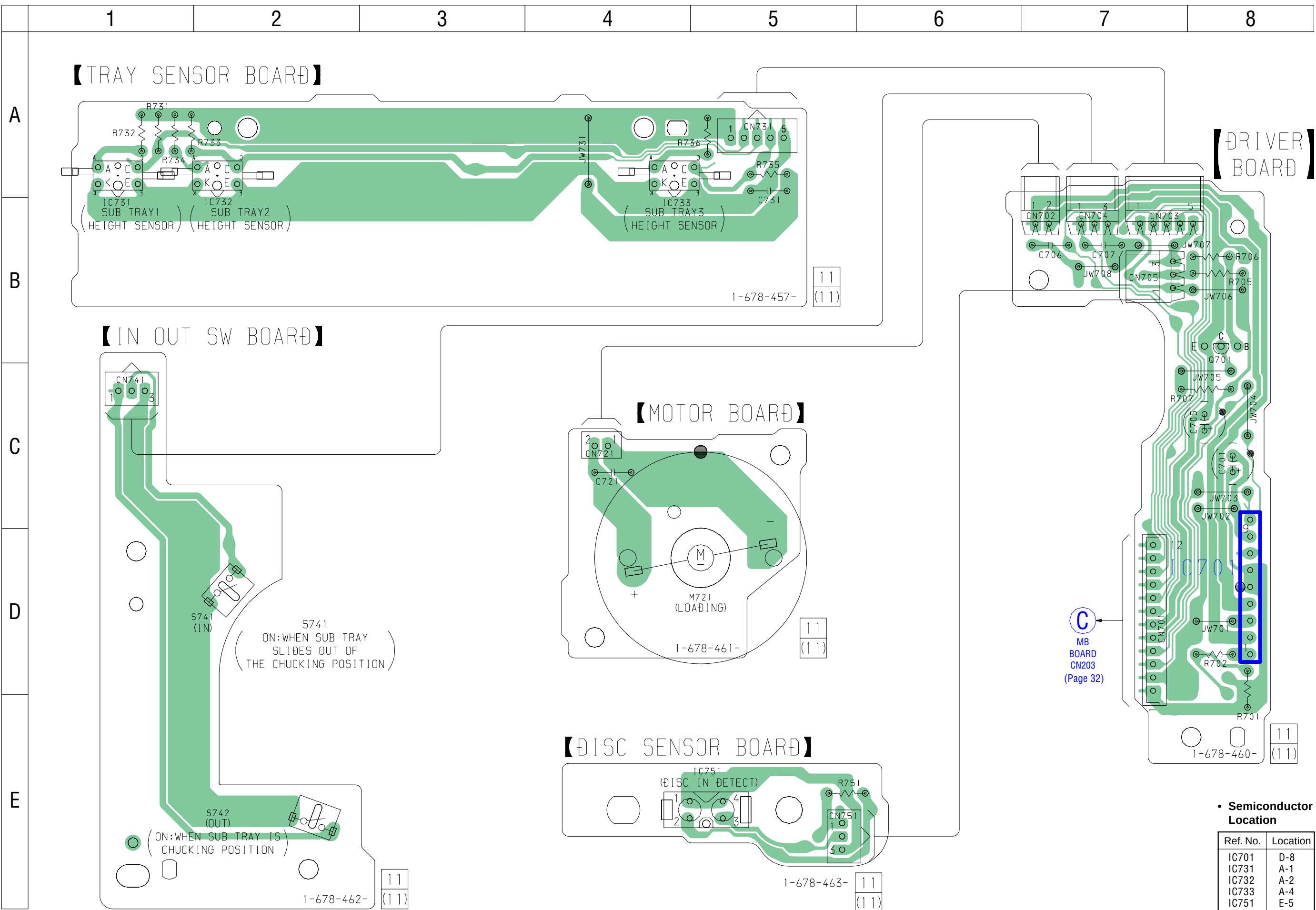
• Semiconductor Location

Ref. No.	Location
D001	B-5
D004	B-4
IC001	E-4
Q001	C-5
Q002	C-3

6-7. SCHEMATIC DIAGRAM – RF Board – • See page 44 for Waveforms. • Refer to servicing notes (page 4) for discrimination of TYPE A/B.

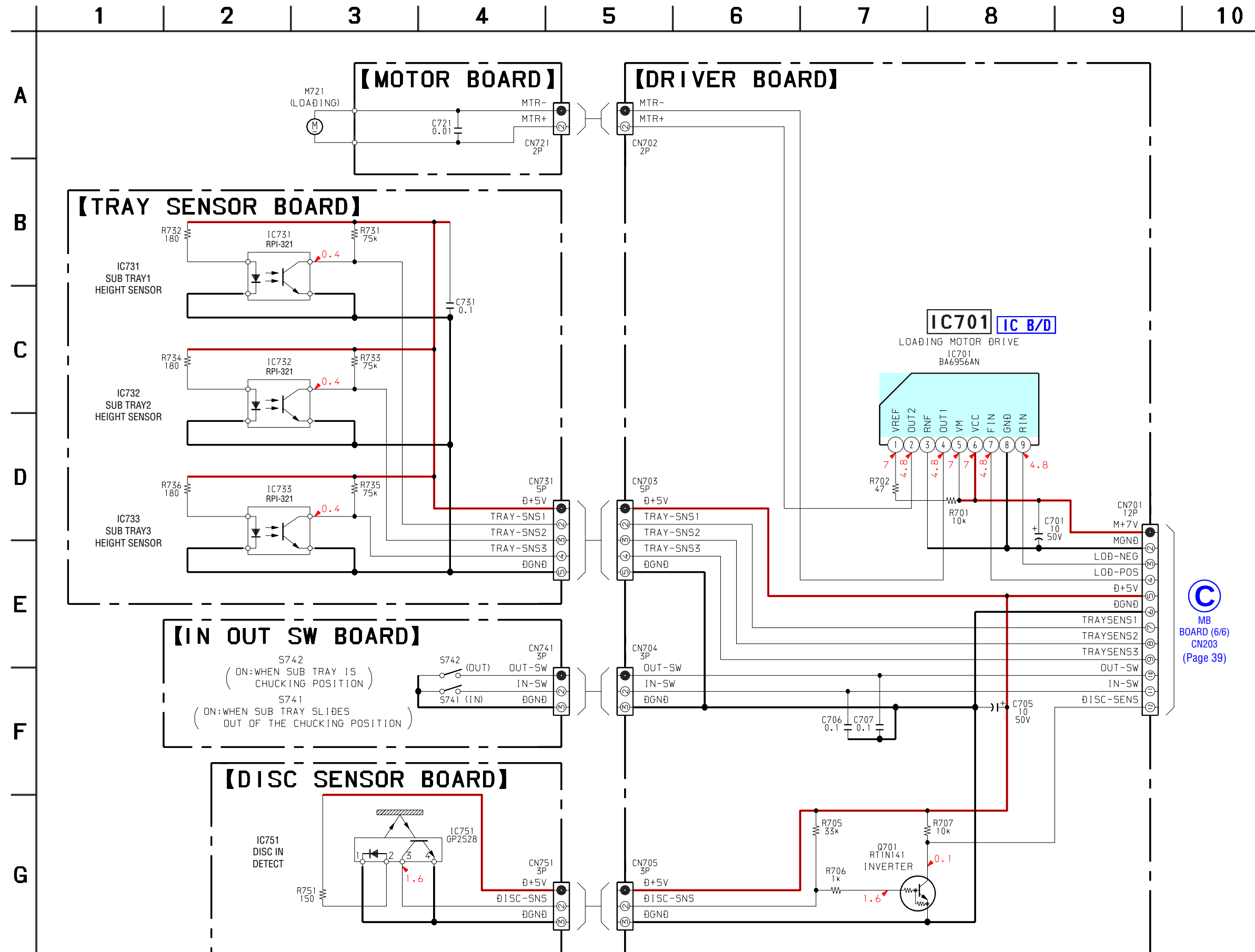


6-8. PRINTED WIRING BOARDS – DISC SENSOR/DRIVER/IN OUT SW/MOTOR/TRAY SENSOR Boards – • See page 27 for Circuit Boards Location.



Ref. No.	Location
IC701	D-8
IC731	A-1
IC732	A-2
IC733	A-4
IC751	E-5
Q701	B-8

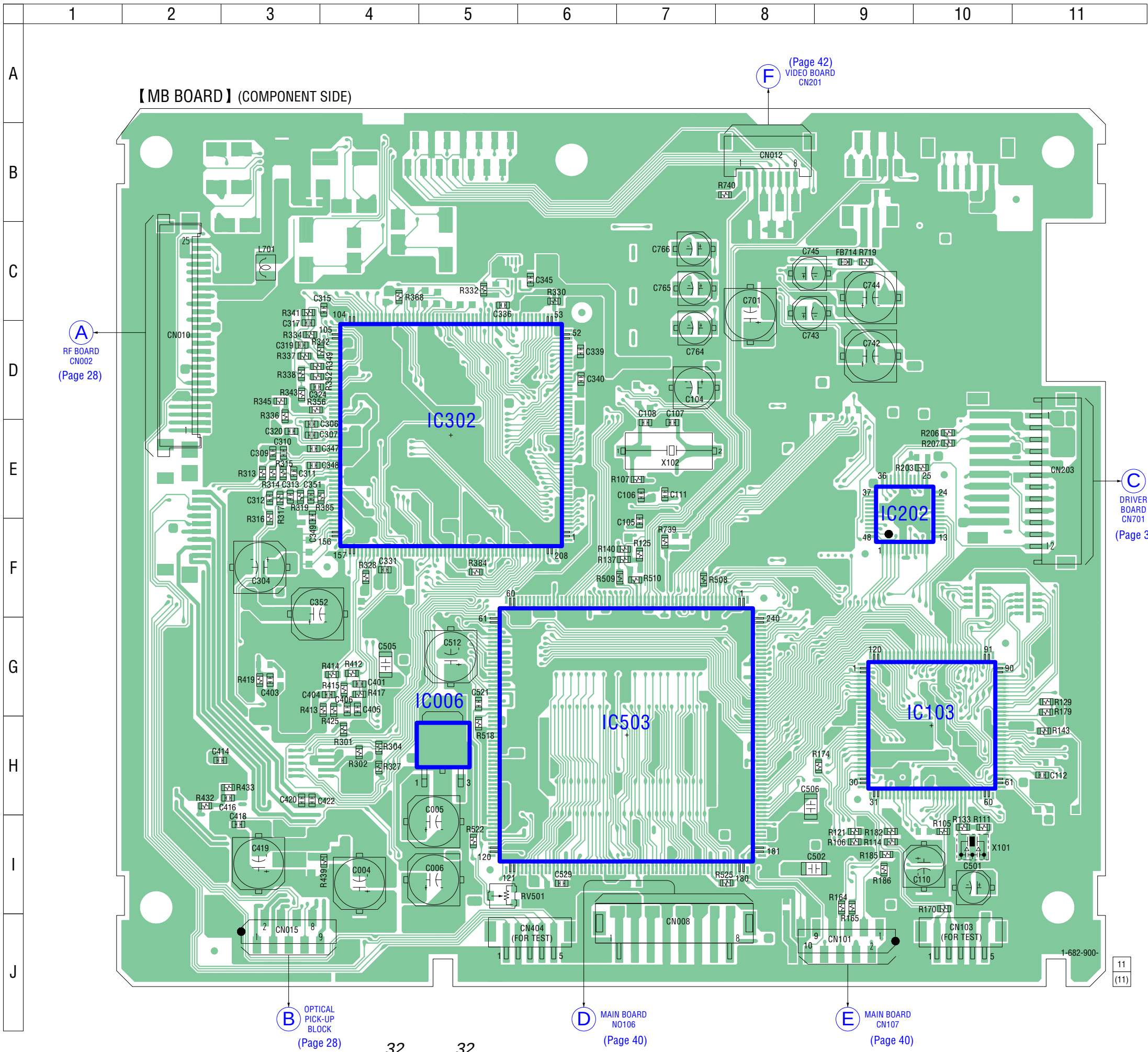
6-9. SCHEMATIC DIAGRAM – DISC SENSOR/DRIVER/IN OUT SW/MOTOR/TRAY SENSOR Boards – • See page 46 for IC Block Diagram.



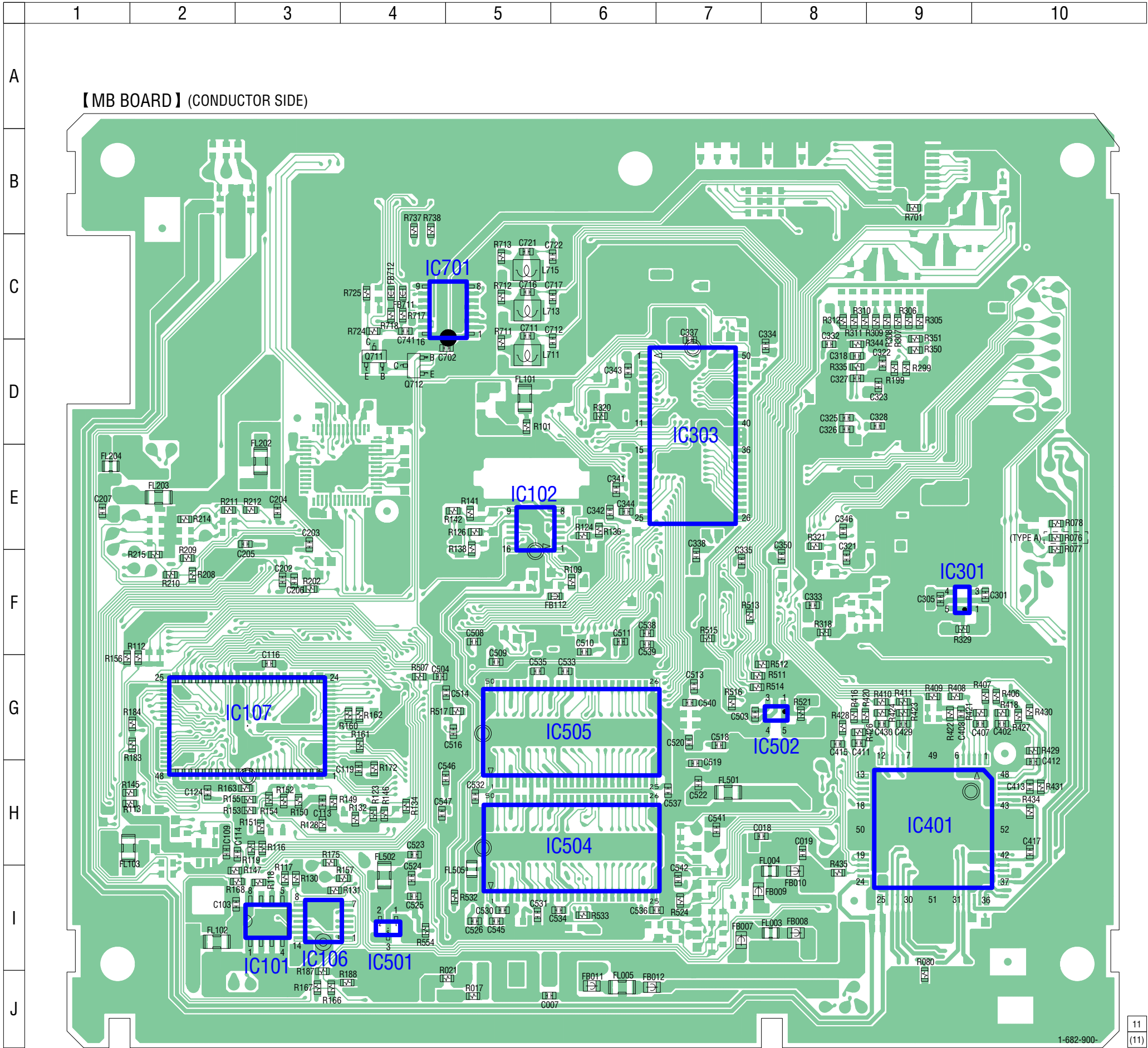
6-10. PRINTED WIRING BOARD – MB Board (Component Side) – • See page 27 for Circuit Boards Location.

• Semiconductor Location

Ref. No.	Location
IC006	H-5
IC103	H-10
IC202	F-10
IC302	E-5
IC503	H-7



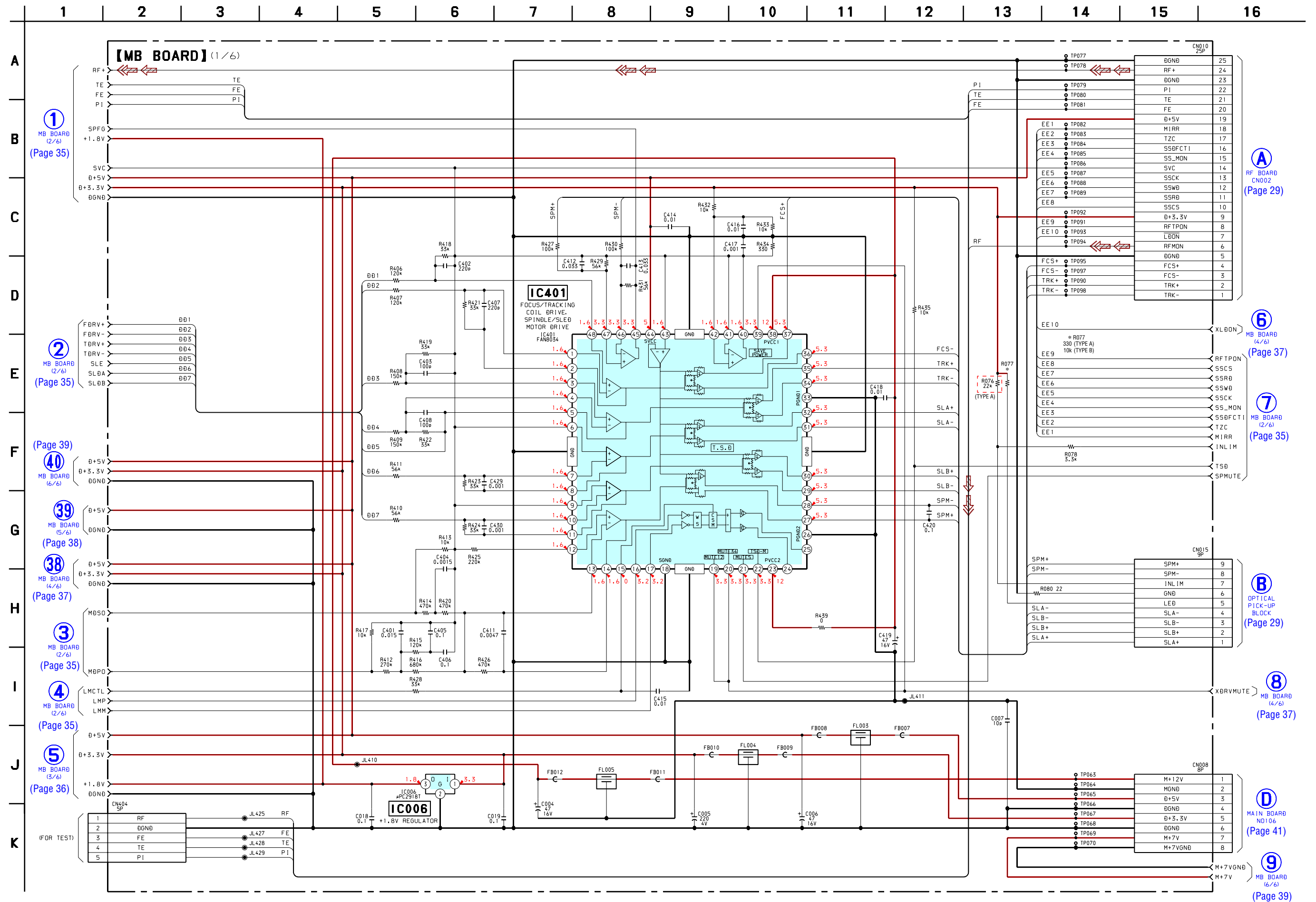
6-11. PRINTED WIRING BOARD – MB Board (Conductor Side) – • See page 27 for Circuit Boards Location. • Refer to servicing notes (page 4) for discrimination of TYPE A/B.



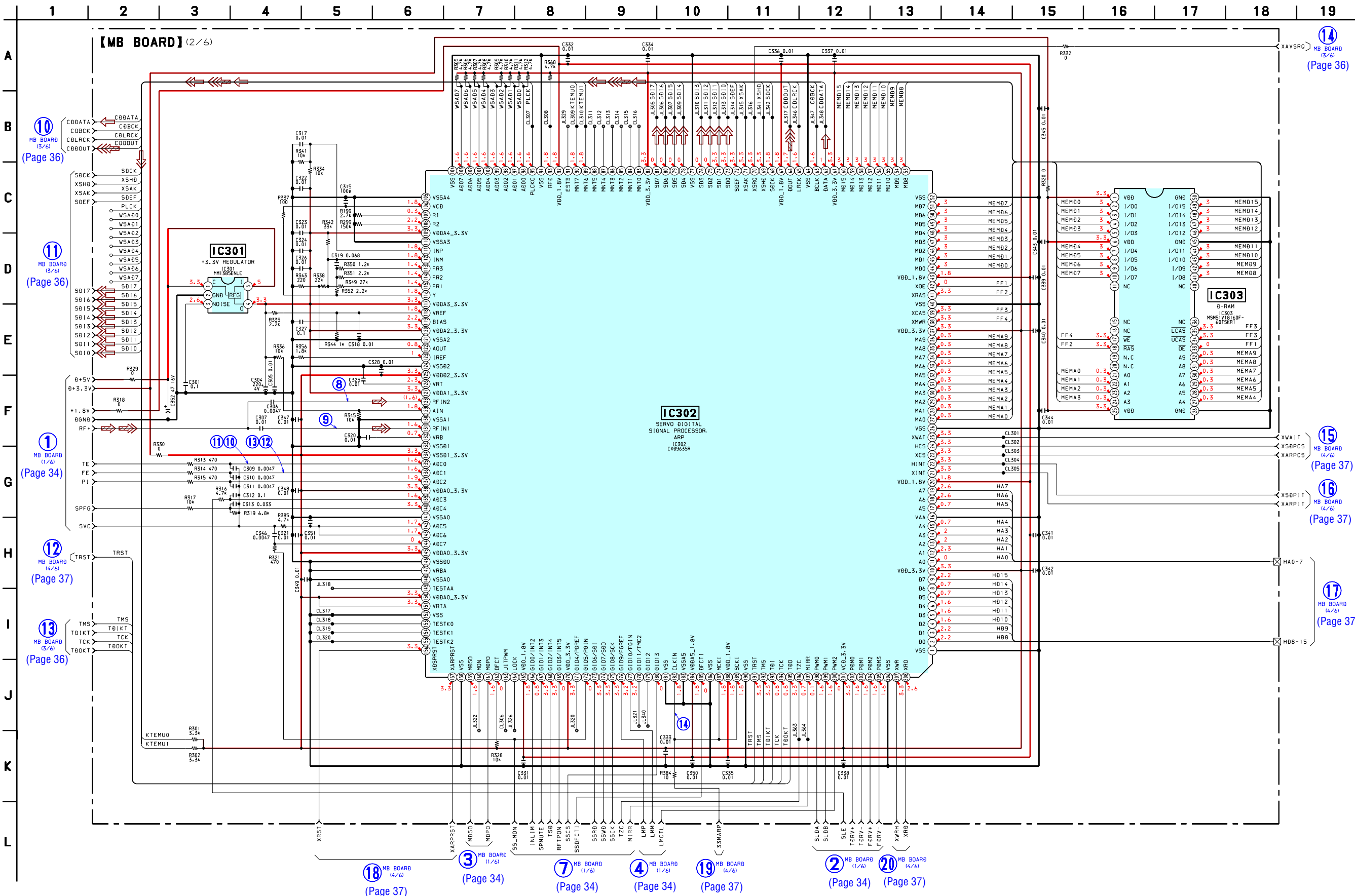
• Semiconductor Location

Ref. No.	Location
IC101	I-3
IC102	E-5
IC106	I-3
IC107	G-3
IC301	F-9
IC303	D-7
IC401	H-9
IC501	I-4
IC502	G-8
IC504	H-6
IC505	G-6
IC701	C-5
Q711	D-4
Q712	D-4

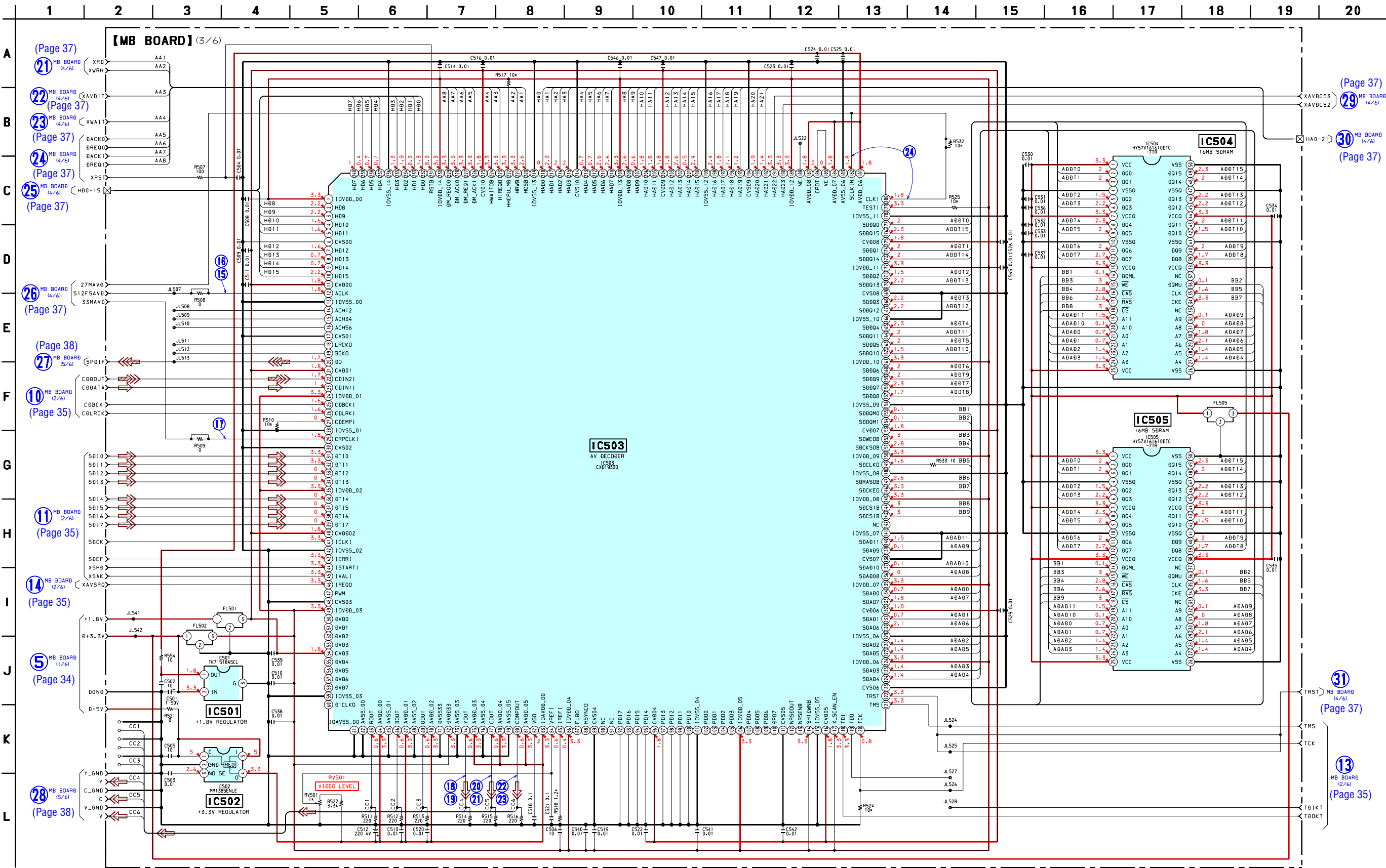
6-12. SCHEMATIC DIAGRAM – MB Board (1/6) – • Refer to servicing notes (page 4) for discrimination of TYPE A/B.



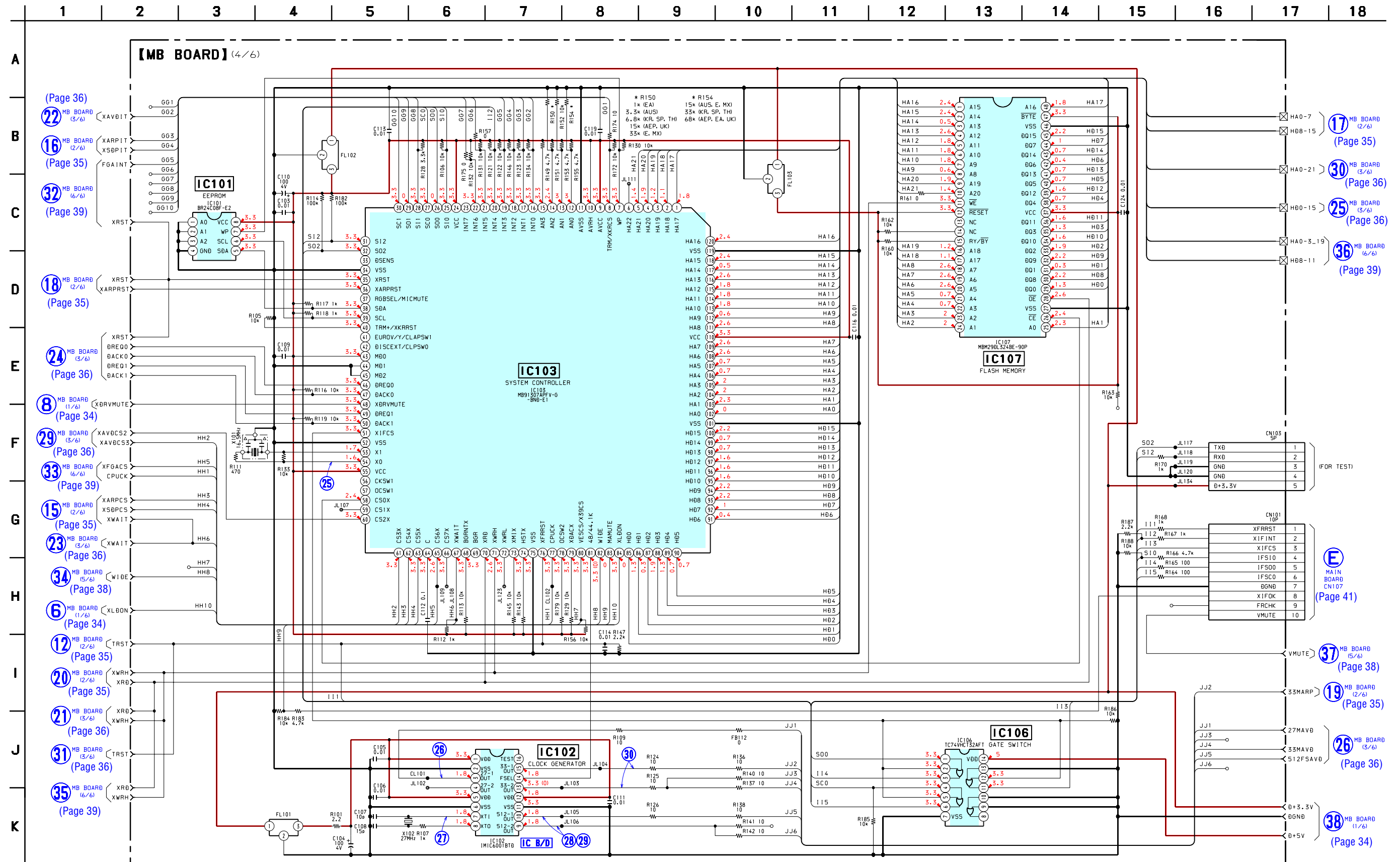
6-13. SCHEMATIC DIAGRAM – MB Board (2/6) – • See page 44 for Waveforms.



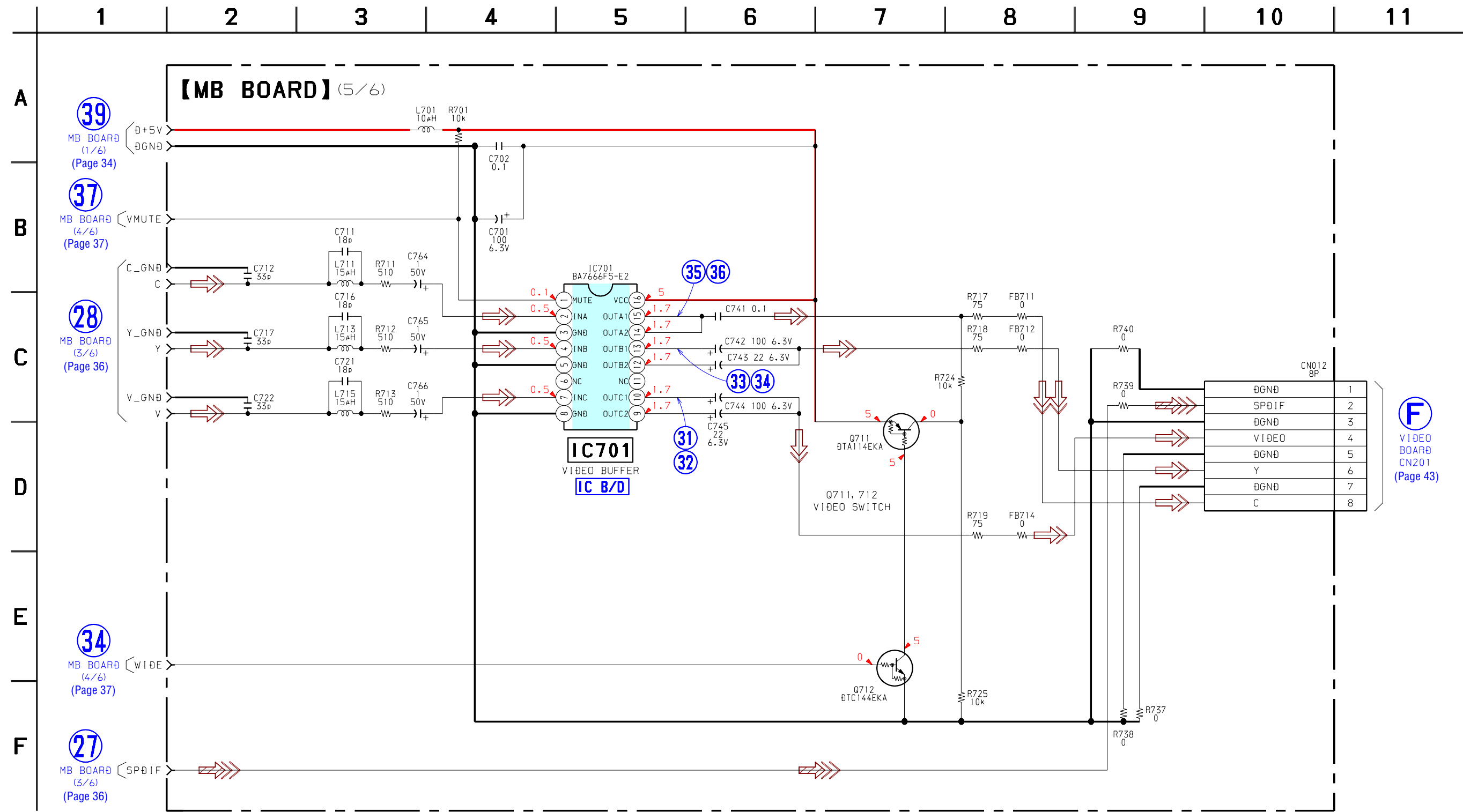
6-14. SCHEMATIC DIAGRAM – MB Board (3/6) – • See page 44 for Waveforms.



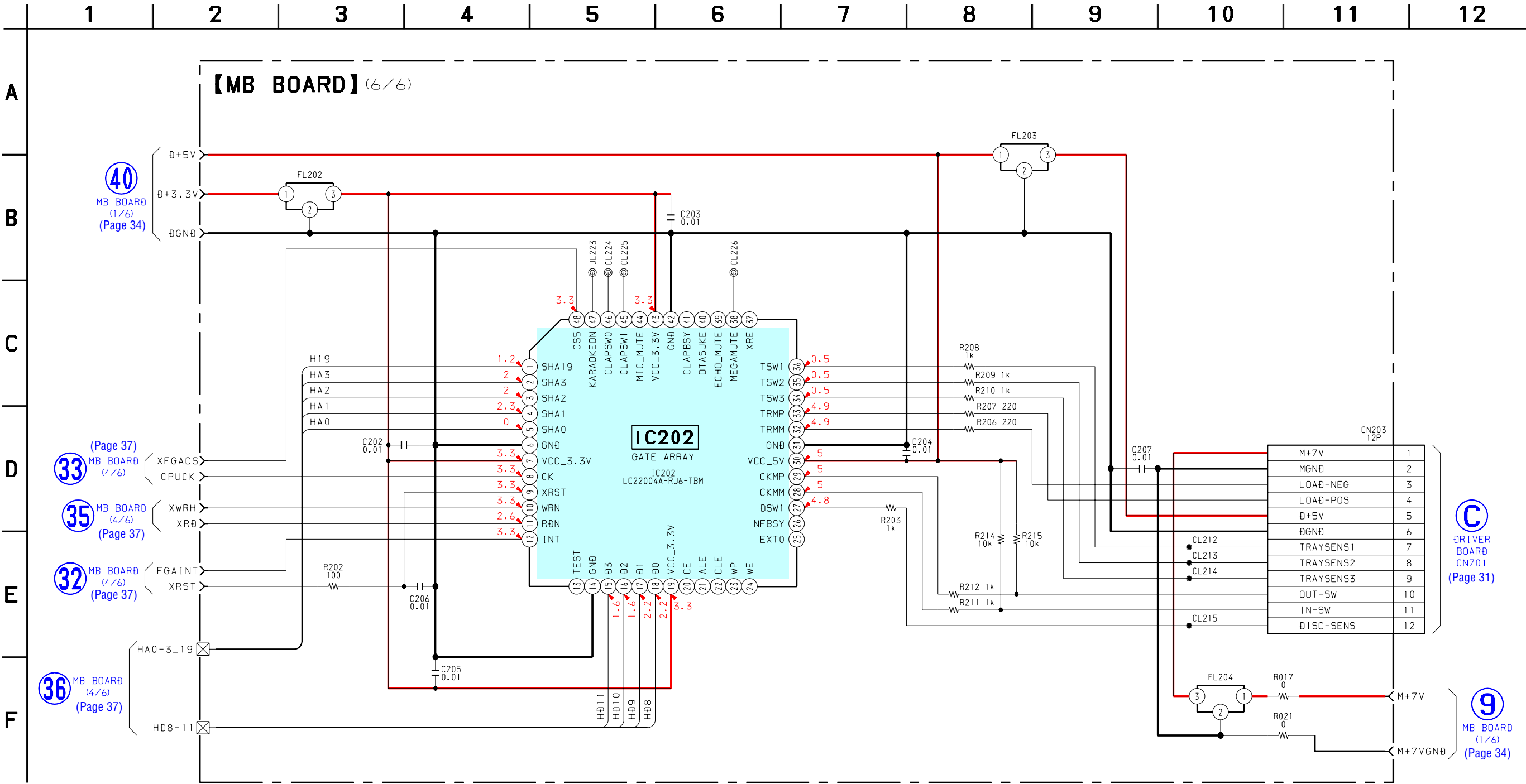
6-15. SCHEMATIC DIAGRAM – MB Board (4/6) – • See page 44 for Waveforms. • See page 46 for IC Block Diagram.



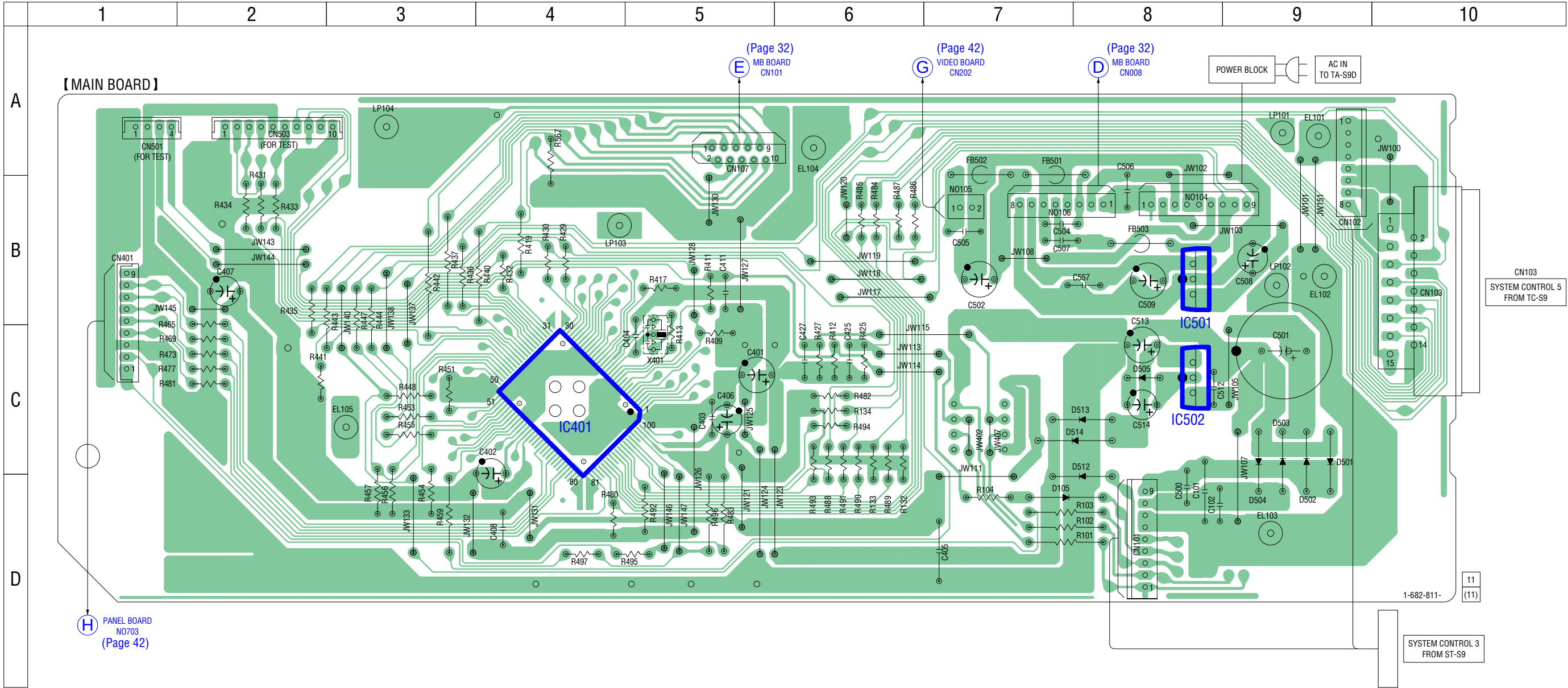
6-16. SCHEMATIC DIAGRAM – MB Board (5/6) – • See page 44 for Waveforms. • See page 46 for IC Block Diagram.



6-17. SCHEMATIC DIAGRAM – MB Board (6/6) –



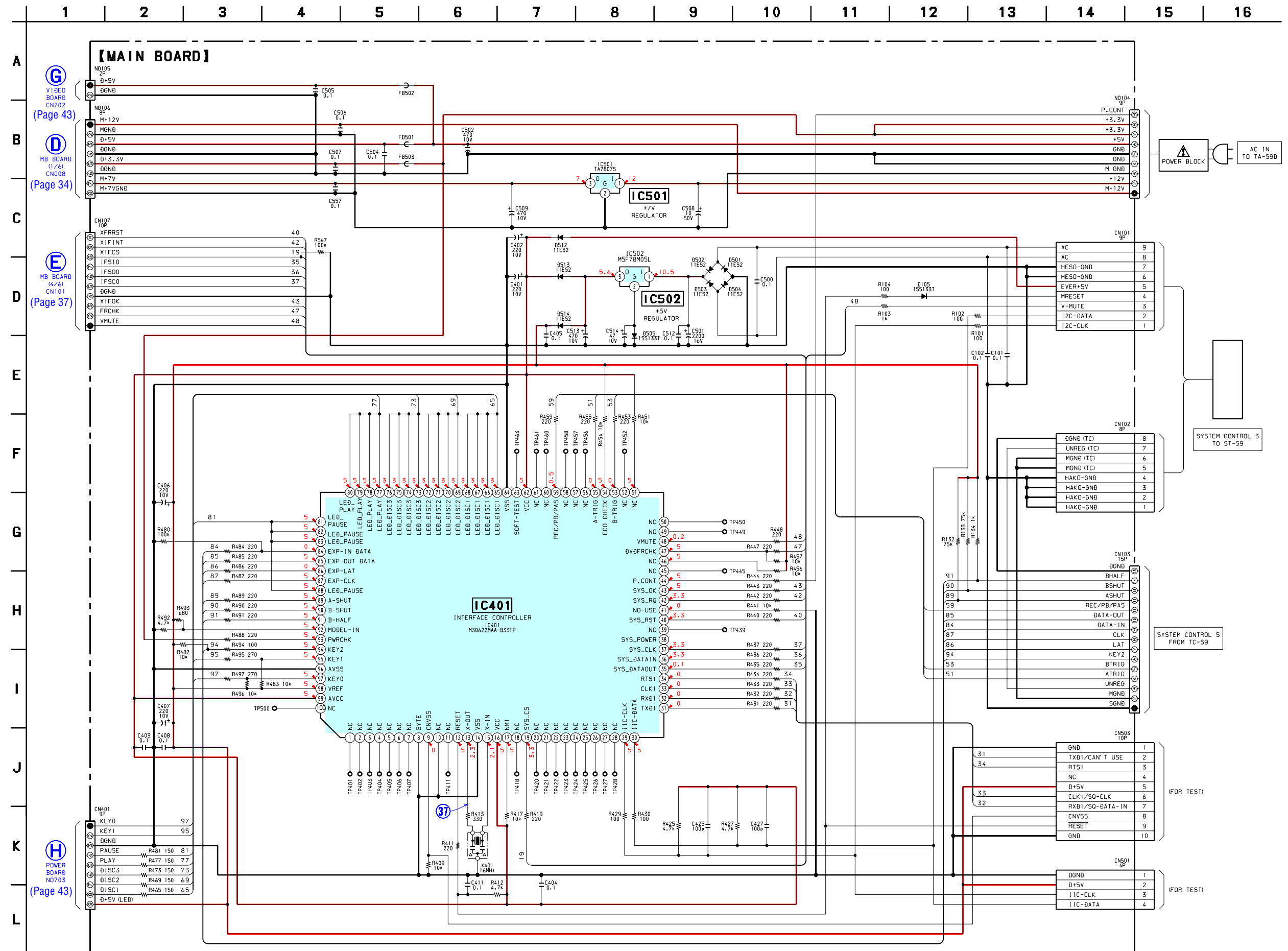
6-18. PRINTED WIRING BOARD – MAIN Board – • See page 27 for Circuit Boards Location.



• Semiconductor Location

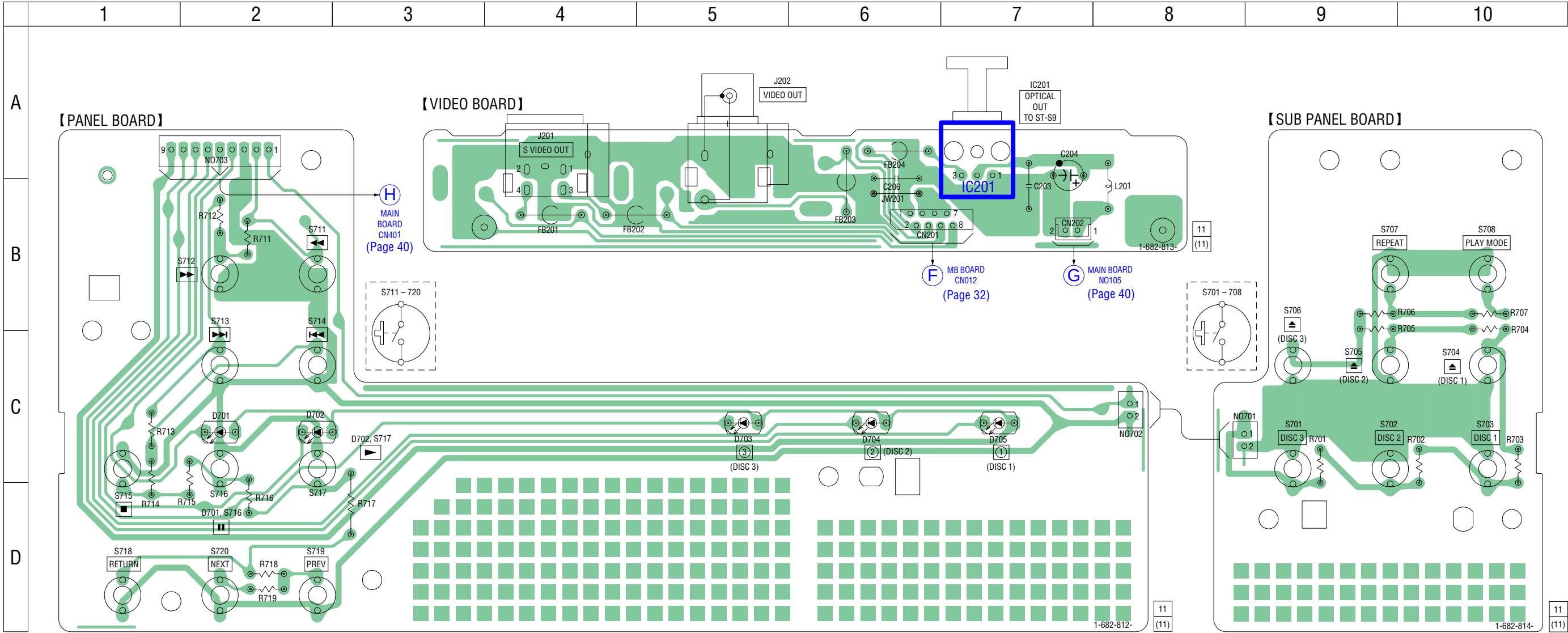
Ref. No.	Location
D105	D-7
D501	C-9
D502	C-9
D503	C-9
D504	C-9
D505	C-8
D512	D-8
D513	C-8
D514	C-8
IC401	C-4
IC501	B-8
IC502	C-8

6-19. SCHEMATIC DIAGRAM – MAIN Board – • See page 44 for Waveform.

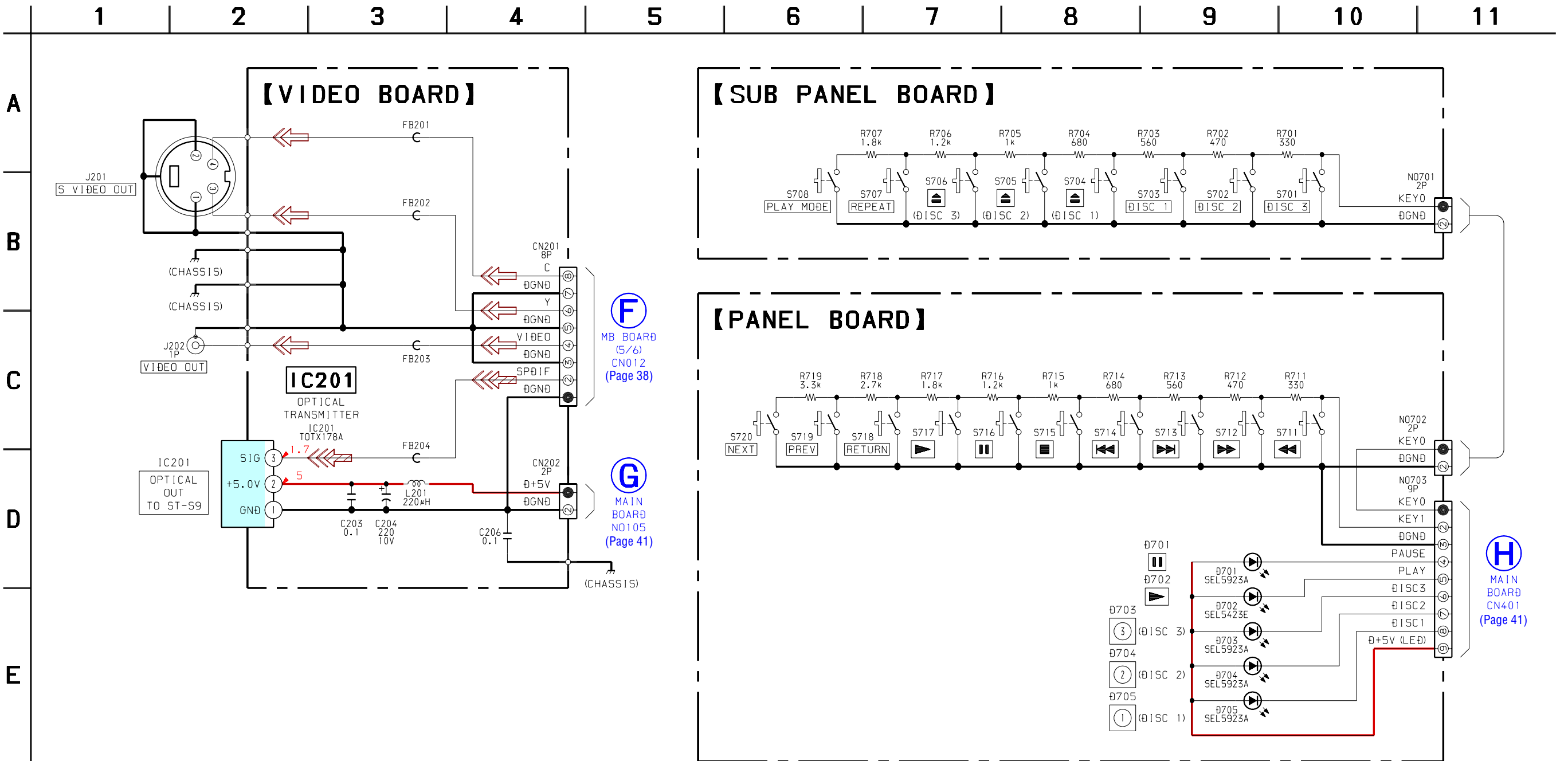


Note: The components identified by mark $\triangle$ or dotted line with mark $\triangle$ are critical for safety.
Replace only with part number specified.

6-20. PRINTED WIRING BOARDS – PANEL/SUB PANEL/VIDEO Boards – • See page 27 for Circuit Boards Location.

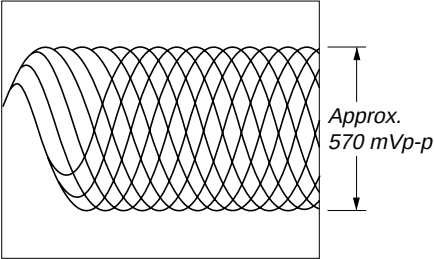


6-21. SCHEMATIC DIAGRAM – PANEL/SUB PANEL/VIDEO Boards –

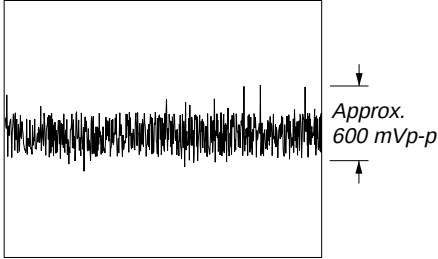


• Waveforms
– RF Board –

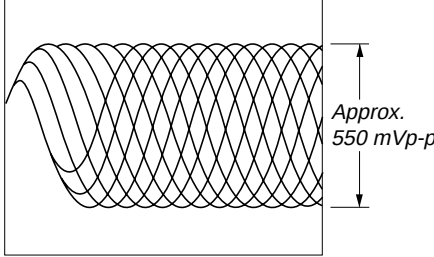
① IC001 ② (RF IN) (DVD PLAY)



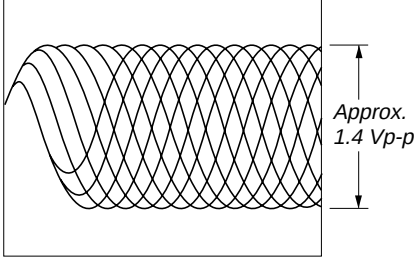
⑥ IC001 ④② (FE) (CD PLAY)



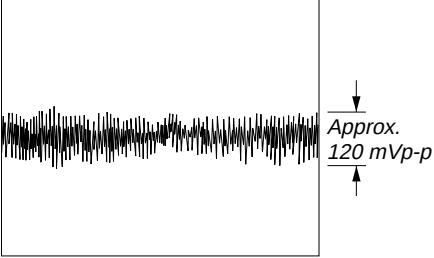
② IC001 ② (RF IN) (CD PLAY)



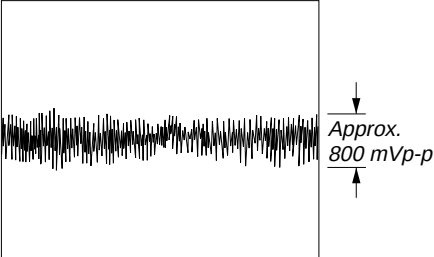
⑦ IC001 ⑤⑨ (SIGO) (DVD/CD PLAY)



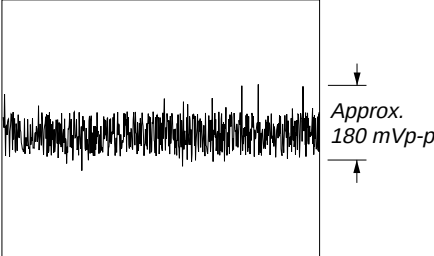
③ IC001 ④① (TE) (DVD PLAY)



④ IC001 ④① (TE) (CD PLAY)

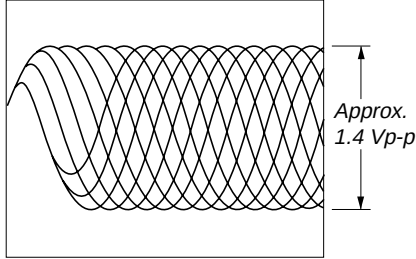


⑤ IC001 ④② (FE) (DVD PLAY)

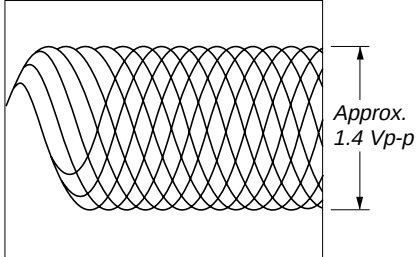


– MB Board –

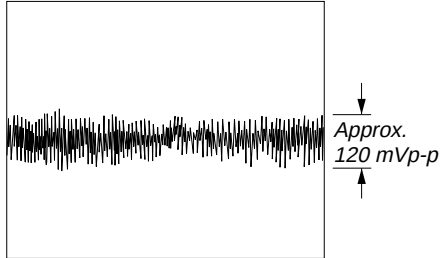
⑧ IC302 ⑩③ (RFIN2) (CD PLAY)



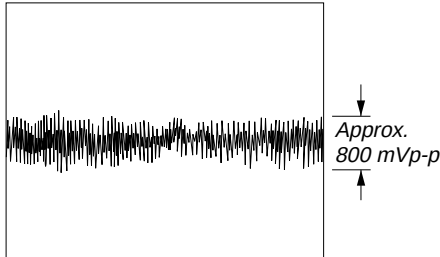
⑨ IC302 ⑩③ (RFIN1) (DVD PLAY)



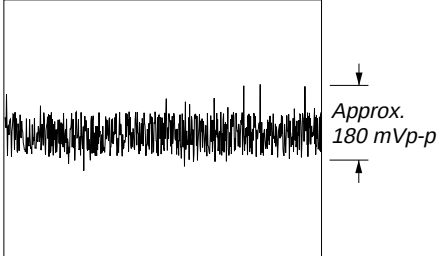
⑩ IC302 ⑩③ (ADC0) (DVD PLAY)



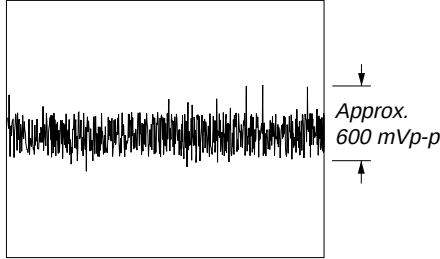
⑪ IC302 ⑩③ (ADC0) (CD PLAY)



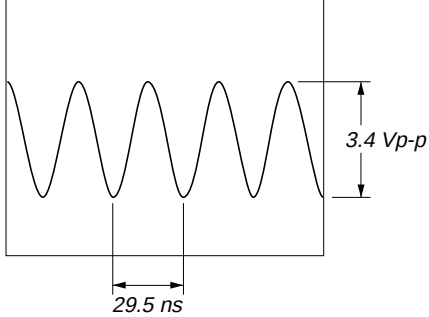
⑫ IC302 ⑩③ (ADC1) (DVD PLAY)



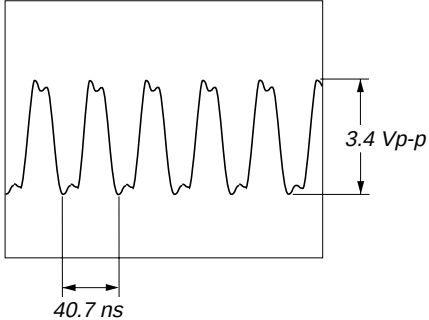
⑬ IC302 ⑩③ (ADC1) (CD PLAY)



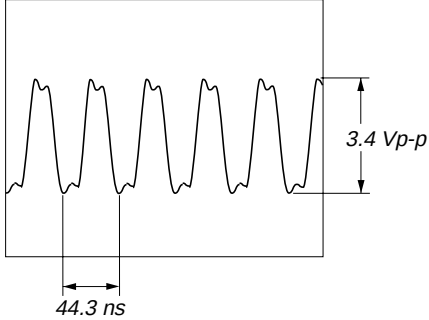
⑭ IC302 ⑩③ (CLKIN), ⑩⑦ (MCKI), ⑩⑧ (SCKI)



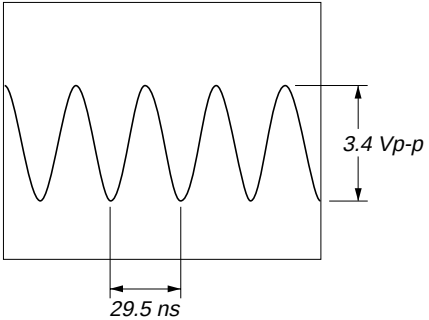
⑮ IC503 ⑩② (ACLK) (DVD PLAY)



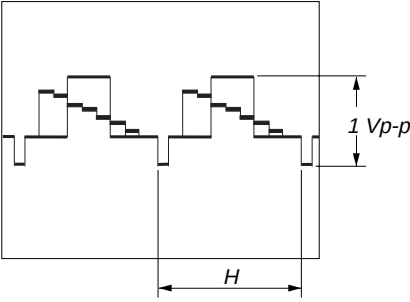
⑯ IC503 ⑩② (ACLK) (CD PLAY)



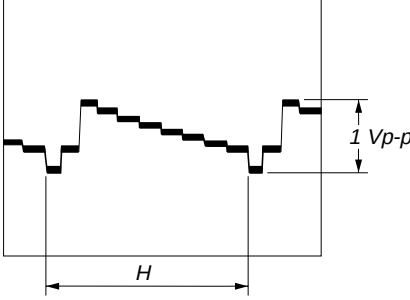
⑰ IC503 ②⑨ (CRPCLKI)



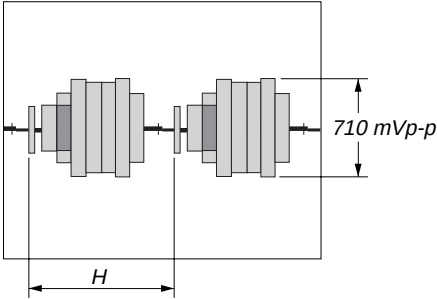
⑰ IC503 ⑦④ (YOUT) (COLOR BAR (NTSC))



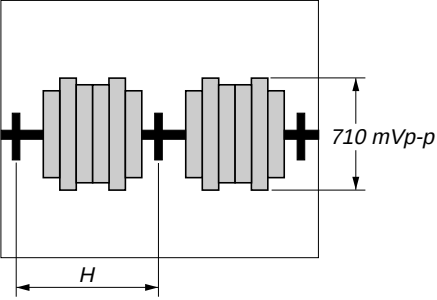
⑰ IC503 ⑦④ (YOUT) (COLOR BAR (PAL))



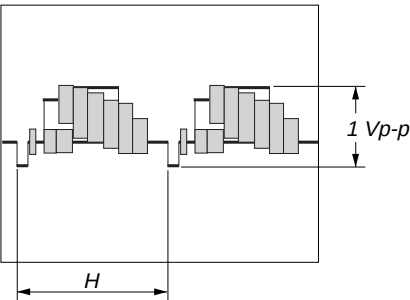
⑳ IC503 ⑦⑦ (COUT) (COLOR BAR (NTSC))



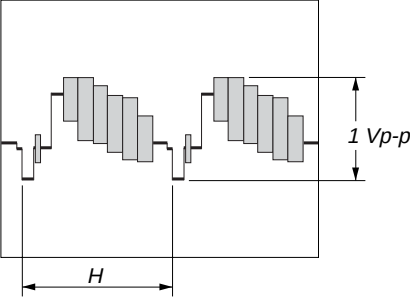
㉑ IC503 ⑦⑦ (COUT) (COLOR BAR (PAL))



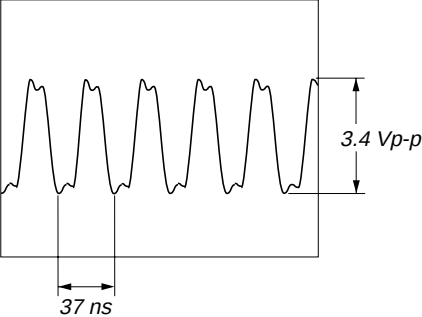
㉒ IC503 ⑧⑩ (COMPOUT) (COLOR BAR (NTSC))



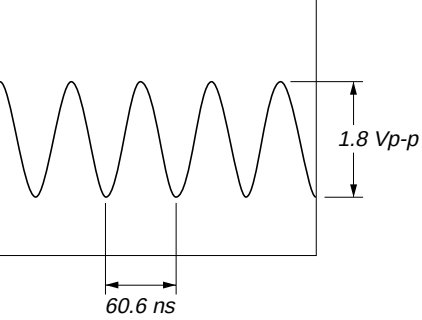
㉓ IC503 ⑧⑩ (COMPOUT) (COLOR BAR (PAL))



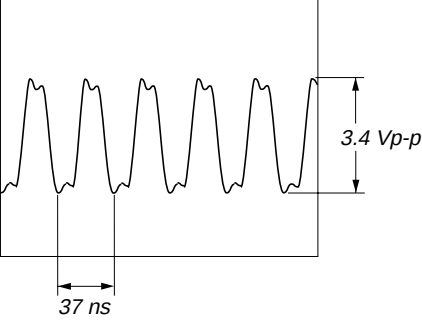
㉔ IC503 ⑩③ (CLKI), ⑩⑧ (SCLKIN)



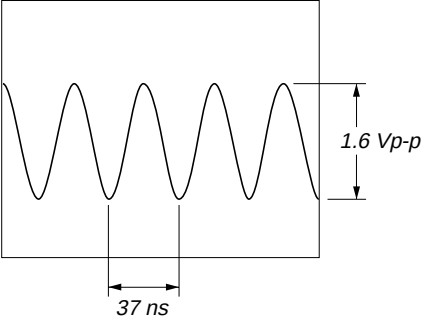
㉕ IC103 ⑤④ (X0)



㉖ IC102 ③ (27-1OUT)

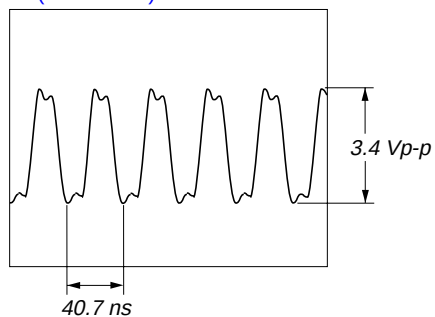


㉗ IC102 ⑦ (XTI)

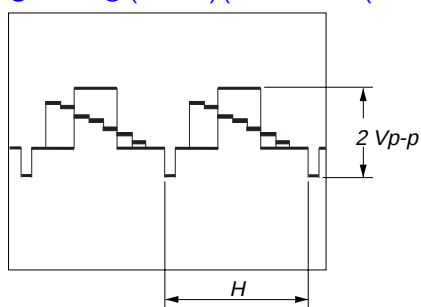


– MAIN Board –

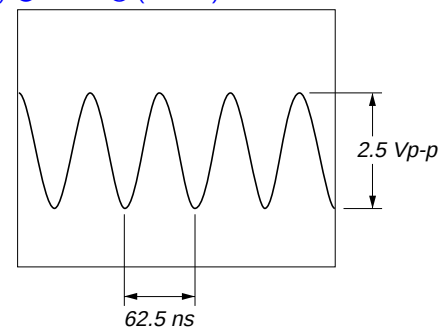
②⑧ IC102 ⑨ (512-2OUT), ⑩ (512-1OUT)
(DVD PLAY)



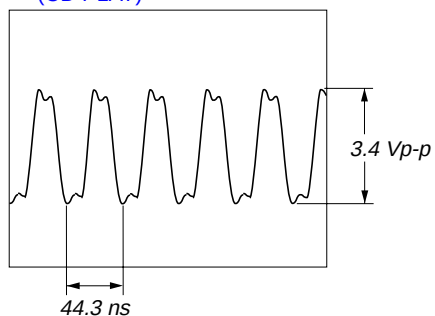
③③ IC701 ⑬ (OUTB1) (COLOR BAR (NTSC))



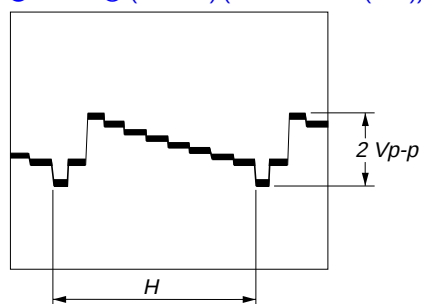
③⑦ IC401 ⑬ (X-OUT)



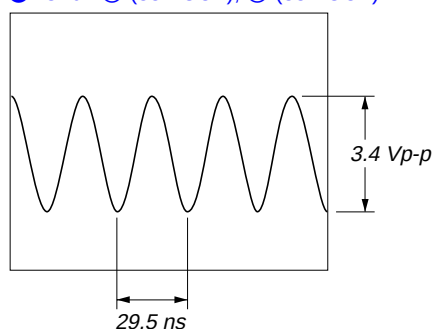
②⑨ IC102 ⑨ (512-2OUT), ⑩ (512-1OUT)
(CD PLAY)



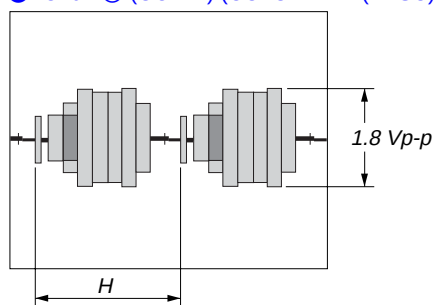
③④ IC701 ⑬ (OUTB1) (COLOR BAR (PAL))



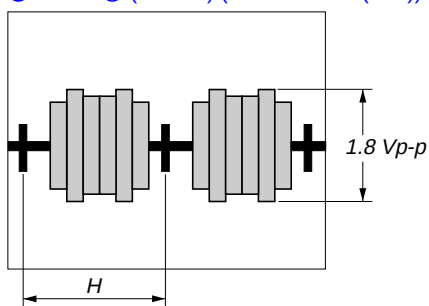
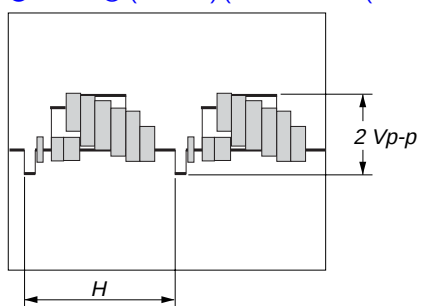
③⑩ IC102 ⑬ (33-2OUT), ⑮ (33-1OUT)



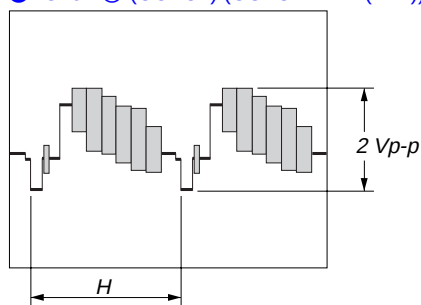
③⑤ IC701 ⑮ (OUTA1) (COLOR BAR (NTSC))



③① IC701 ⑩ (OUTC1) (COLOR BAR (NTSC)) ③⑥ IC701 ⑮ (OUTA1) (COLOR BAR (PAL))



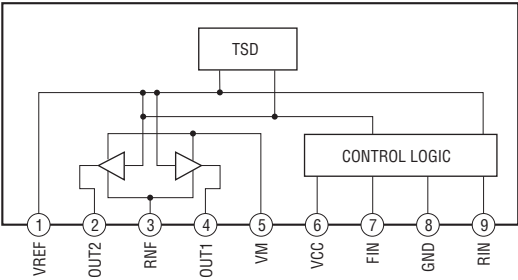
③② IC701 ⑩ (OUTC1) (COLOR BAR (PAL))



DVP-S9

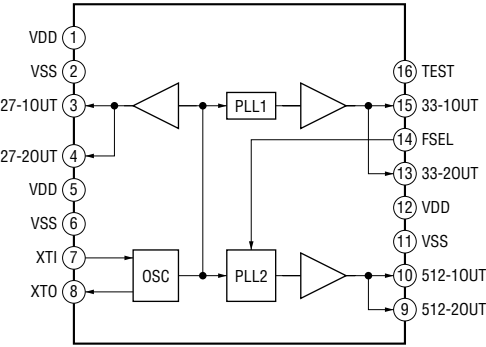
- IC Block Diagrams
- DRIVER Board –

IC701 BA6956AN

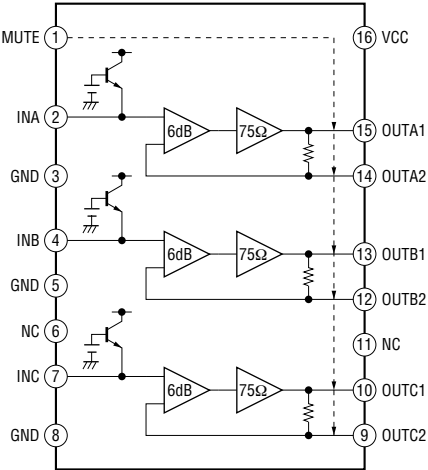


- MB Board –

IC102 IMIC6001BTD



IC701 BA7666FS-E2



6-22. IC PIN FUNCTION DESCRIPTION

• RF BOARD IC001 SP3728AC (DVD/CD RF AMP, FOCUS/TRACKING ERROR AMP)

Pin No.	Pin Name	I/O	Description
1, 2	RFIP, RFIN	I	RF signal input terminal
3	CP	—	Tracking LPF terminal
4	WIN	I	Wobble detection signal input terminal Not used (open)
5	WPP	O	Wobble push-pull signal output terminal Not used (open)
6	CN	—	Tracking LPF terminal
7 to 10	A2 to D2	I	Photo detector interface input terminal (AC coupled input for the DPD and wobble)
11 to 14	D to A	I	Photo detector interface input terminal (main)
15 to 18	E to H	I	Photo detector interface input terminal (sub)
19	VC	O	Reference voltage (+2.5V) output terminal
20	VPB	—	Power supply terminal (+5V) (servo block)
21	DVDPD	I	DVD APC signal input terminal
22	CDPD	I	CD APC signal input terminal
23	VNB	—	Ground terminal (servo block)
24	LDSELO	O	APC LD select signal output terminal
25	DVDLD	O	DVD APC signal output terminal
26	CDLD	O	CD APC signal output terminal
27	$\overline{\text{LDON}}$	I	APC LD output control signal input terminal
28	MEVO	O	Envelope signal output terminal for mirror
29	MIN	I	RF signal input terminal for mirror
30	MP	—	Mirror top hold terminal
31	MB	—	Mirror bottom hold terminal
32	MLPF	—	Mirror LPF terminal
33	MIRR	O	Mirror detect signal output to the servo DSP (IC302)
34	BYP2	—	Servo AGC gain control terminal
35	PII	I	Pull-in signal input terminal
36	PI	O	Pull-in signal output terminal
37	TZC	O	Tracking zero crossing signal output to the servo DSP (IC302)
38	DFT	O	Defect signal output to the servo DSP (IC302)
39	VCI	I	Reference voltage input terminal
40	TZIN	I	Tracking zero crossing signal input terminal
41	TE	O	Tracking error signal output to the servo DSP (IC302)
42	FE	O	Focusing error signal output to the servo DSP (IC302)
43	TPH	—	PI top hold terminal
44	MON	O	Monitor signal output to the servo DSP (IC302)
45	SRD	O	Serial data output to the servo DSP (IC302)
46	SWD	I	serial data input from the servo DSP (IC302)
47	SCLK	I	Serial clock signal input from the servo DSP (IC302)
48	SDEN	I	Serial data enable signal input from the servo DSP (IC302)
49	V33	—	Power supply terminal (+3.3V) (CMOS output buffers)
50	RX	I	Reference resistor input terminal
51	TPA	—	RF top hold terminal
52	MEV	—	RF bottom envelope terminal
53	VNA	—	Ground terminal (RF block and serial port)
54, 55	FNN, FNP	O	Differential filter normal signal output terminal
56, 57	DIP, DIN	I	Analog signal input terminal for RF single buffer

Pin No.	Pin Name	I/O	Description
58	BYP	—	RF AGC gain control terminal
59	SIGO	O	Single-ended RF signal output terminal
60	VPA	—	Power supply terminal (+5V) (RF block and serial port)
61, 62	AIP, AIN	I	AGC amp signal input terminal
63, 64	ATON, ATOP	O	Differential attenuator signal output terminal

• MB BOARD IC103 MB91307APFV-G-BND-E1 (SYSTEM CONTROLLER)

Pin No.	Pin Name	I/O	Description
1 to 5	HA17 to HA21	O	Address signal output terminal
6	HA22	—	Not used (open)
7	WP	O	Write control signal output to the EEPROM (IC101)
8	TRM/XKRCS	—	Not used (open)
9	AVCC	—	Power supply terminal (+3.3V) (for A/D converter)
10	AVRH	—	Reference voltage input (+3.3V) terminal (for A/D converter)
11	AVSS	—	Ground terminal (for A/D converter)
12	AN0	I	Mode 0 set input terminal
13	AN1	I	Mode 1 set input terminal
14	AN2	I	Mode 2 set input terminal
15	AN3	I	Mode 3 set input terminal
16	INT0	I	Interrupt request signal input from the AV decoder (IC503)
17	INT1	I	Interrupt request signal input from the ARP (IC302)
18	INT2	I	Interrupt request signal input from the servo DSP (IC302)
19	INT3	I	Interrupt request signal input from the gate array (IC202)
20	INT4	I	Interrupt request signal input from the interface controller (IC401)
21, 22	INT5, INT6	—	Not used (fixed at “H”)
23	INT7	—	Not used (open)
24	VCC	—	Power supply terminal (+3.3V)
25	SI0	I	Serial data input from the interface controller (IC401)
26	SO0	O	Serial data output to the interface controller (IC401)
27	SC0	O	Serial clock signal output to the interface controller (IC401)
28	SI1	I	Serial data input terminal Not used (open)
29	SO1	O	Serial data output terminal Not used (open)
30	SC1	O	Serial clock signal output terminal Not used (open)
31	SI2	I	Serial data input terminal (for test)
32	SO2	O	Serial data output terminal (for test)
33	DSSENS	—	Not used (open)
34	VSS	—	Ground terminal
35	XRST	O	System reset signal output terminal “L”: reset
36	XARPPST	O	Reset signal output to the ARP (IC302) “L”: reset
37	RGBSEL/MICMUTE	—	Not used (open)
38	SDA	I/O	Two-way data bus with EEPROM (IC101)
39	SCL	O	Serial clock signal output to the EEPROM (IC101)
40	TRM+/XKRRST	—	Not used (fixed at “L”)
41	EUROV/Y/CLAPSW1	—	Not used (open)
42	DISCEXT/CLPSW0	—	Not used (open)
43	MD0	I	Mode select 0 signal input terminal (fixed at “H” in this set)
44	MD1	I	Mode select 1 signal input terminal (fixed at “L” in this set)
45	MD2	I	Mode select 2 signal input terminal (fixed at “L” in this set)
46	DREQ0	I	Request 0 signal input from the AV decoder (IC503)
47	DACK0	O	Acknowledge 0 signal output to the AV decoder (IC503)
48	XDRVMUTE	O	Drive mute signal output terminal
49	DREQ1	I	Request 1 signal input from the AV decoder (IC503)
50	DACK1	O	Acknowledge 1 signal output to the AV decoder (IC503)

Pin No.	Pin Name	I/O	Description
51	XIFCS	O	Chip select signal output to the interface controller (IC401)
52	VSS	—	Ground terminal
53	X1	O	System clock output terminal (16.5MHz)
54	X0	I	System clock input terminal (16.5MHz)
55	VCC	—	Power supply terminal (+3.3V)
56	CKSW1	—	Not used (open)
57	OCSSW1	—	Not used (open)
58	CS0X	O	Chip select signal output to the flash memory (IC107)
59	CS1X	—	Not used (open)
60	CS2X	O	Chip select signal output to the AV decoder (IC503)
61	CS3X	O	Chip select signal output to the AV decoder (IC503)
62	CS4X	O	Chip select signal output to the ARP (IC302)
63	CS5X	O	Chip select signal output to the Servo DSP (IC302)
64	C	—	Capacitor connected terminal
65	CS6X	O	Chip select signal output to the gate array (IC202)
66	CS7X	—	Not used (open)
67	XWAIT	I	Wait signal input terminal
68	BGRNTX	—	Not used (fixed at “H”)
69	BGR	—	Not used (open)
70	XRD	O	Read enable signal output terminal
71	XWRH	O	High byte write enable signal output terminal
72	XWRL	—	Not used (open)
73	NMIX	—	Not used (fixed at “H”)
74	HSTX	—	Not used (fixed at “H”)
75	VSS	—	Ground terminal
76	XFRRST	I	Reset signal input from the interface controller (IC401) “L”: reset
77	CPUCK	O	CPU clock signal output terminal
78	OCSW2	—	Not used (fixed at “H”)
79	XDACX	—	Not used (fixed at “H”)
80	VESCS/X39CS	—	Not used (fixed at “H”)
81	48/44.1K	O	Sampling frequency selection signal output terminal “L”: 48kHz, “H”: 44.1kHz
82	WIDE	O	Wide signal output terminal
83	MAMUTE	I	System OK signal input terminal
84	XLDON	O	LD control signal output terminal
85 to 100	HD0 to HD15	I/O	Two-way data bus terminal
101	VSS	—	Ground terminal
102 to 109	HA0 to HA7	O	Address signal output terminal
110	VCC	—	Power supply terminal (+3.3V)
111 to 118	HA8 to HA15	O	Address signal output terminal
119	VSS	—	Ground terminal
120	HA16	O	Address signal output terminal

• MB BOARD IC302 CXD9635R (SERVO DIGITAL SIGNAL PROCESSOR, ARP)

Pin No.	Pin Name	I/O	Description
1	VSS	—	Ground terminal (for digital system)
2 to 9	D0 to D7	I/O	Two-way data bus terminal
10	VDD 3.3V	—	Power supply terminal (+3.3V) (for digital system)
11 to 15	A0 to A4	I	Address signal input terminal
16	VSS	—	Ground terminal (for digital system)
17 to 19	A5 to A7	I	Address signal input terminal
20	VDD 1.8V	—	Power supply terminal (+1.8V) (for digital system)
21	XINT	O	Interrupt request signal output to the system controller (IC103)
22	HINT	O	Interrupt request signal output to the system controller (IC103)
23	XCS	I	Chip select signal input from the system controller (IC103)
24	HCS	I	Chip select signal input from the system controller (IC103)
25	XWAT	O	Wait signal output terminal
26	VSS	—	Ground terminal (for digital system)
27 to 36	MA0 to MA9	O	Address signal output to the D-RAM (IC303)
37	VDD 3.3V	—	Power supply terminal (+3.3V) (for digital system)
38	XMWR	O	Write enable signal output to the D-RAM (IC303)
39	XCAS	O	CAS signal output to the D-RAM (IC303)
40	VSS	—	Ground terminal (for digital system)
41	XRAS	O	RAS signal output to the D-RAM (IC303)
42	XOE	O	Output enable signal output to the D-RAM (IC303)
43	VDD1 1.8V	—	Power supply terminal (+1.8V) (for digital system)
44 to 51	MD0 to MD7	I/O	Two-way data bus with the D-RAM (IC303)
52	VSS	—	Ground terminal (for digital system)
53 to 60	MD8 to MD15	I/O	Two-way data bus with the D-RAM (IC303)
61	VDD 3.3V	—	Power supply terminal (+3.3V) (for digital system)
62	DATA	O	CD data output to the AV decoder (IC503)
63	BCLK	O	CD bit clock signal output to the AV decoder (IC503)
64	VSS	—	Ground terminal (for digital system)
65	LRCK	O	CD LR clock signal output to the AV decoder (IC503)
66	DOUT	O	Digital signal output to the AV decoder (IC503)
67	VDD 1.8V	—	Power supply terminal (+1.8V) (for digital system)
68	SDCK	O	SD bus clock signal output to the AV decoder (IC503)
69	XSHD	O	SD bus header signal output to the AV decoder (IC503)
70	XSRQ	I	SD bus request signal input from the AV decoder (IC503)
71	XSAK	O	SD bus acknowledge signal output to the AV decoder (IC503)
72	SDEF	O	SD bus error flag signal output to the AV decoder (IC503)
73 to 81	SD0 to SD7	O	SD bus data output to the AV decoder (IC503)
82	VDD 3.3V	—	Power supply terminal (+3.3V) (for digital system)
83 to 88	MNT0 to MNT5	I/O	Monitor signal input/output terminal Not used (open)
89, 90	MNT6, MNT7	I/O	Monitor signal input/output terminal Not used (fixed at “H”)
91	ESTB	O	Error strobe signal output terminal Not used (open)
92	VDD 1.8V	—	Power supply terminal (+1.8V) (for digital system)
93	RFD	I/O	RF digital data input/output terminal Not used (fixed at “H”)
94	VSS	—	Ground terminal (for digital system)

Pin No.	Pin Name	I/O	Description
95	PLCKO	O	Not used (open)
96 to 103	ADO0 to ADO7	O	Not used (fixed at “H”)
104	VSS	—	Ground terminal (for digital system)
105	VSSA4	—	Ground terminal (for analog system)
106	VCO	I	VCO control signal input terminal
107, 108	R1, R2	I	VCO outside resistance signal input terminal
109	VDDA4 3.3V	—	Power supply terminal (+3.3V) (for analog system)
110	VSSA3	—	Ground terminal (for analog system)
111	INP	I	OP amp positive input terminal
112	INM	I	OP amp negative input terminal
113 to 115	FR3 to FR1	I	Feedback resistance signal input terminal
116	Y	O	OP amp output terminal
117	VDDA3 3.3V	—	Power supply terminal (+3.3V) (for analog system)
118	VREF	I	Reference voltage input terminal (for D/A converter)
119	BIAS	I	Bias input terminal (for D/A converter)
120	VDDA2 3.3V	—	Power supply terminal (+3.3V) (for analog system)
121	VSSA2	—	Ground terminal (for analog system)
122	AOUT	O	D/A converter output terminal (for D/A converter)
123	IREF	I	Reference current input terminal (for D/A converter)
124	VSSD2	—	Ground terminal (for D/A converter)
125	VDDD2 3.3V	—	Power supply terminal (+3.3V) (for D/A converter)
126	VRT	I	A/D converter reference input terminal
127	VDDA1 3.3V	—	Power supply terminal (+3.3V) (for analog system)
128	RFIN2	I	RF signal input terminal
129	NMIX	—	RF signal input terminal Not used
130	VSSA1	—	Ground terminal (for analog system)
131	RFIN1	I	RF signal input terminal
132	VRB	I	A/D converter reference input terminal
133	VSSD1	—	Ground terminal (for A/D converter)
134	VDDD1 3.3V	—	Power supply terminal (+3.3V) (for A/D converter)
135	ADC0	I	Tracking error signal input from the SP3728AC (IC001)
136	ADC1	I	Focusing error signal input from the SP3728AC (IC001)
137	ADC2	I	Pull-in signal input from the SP3728AC (IC001)
138	VDDA0 3.3V	—	Power supply terminal (+3.3V) (for analog system)
139	ADC3	I	Tracking coil drive signal input from the FAN8034 (IC401)
140	ADC4	I	Spindle motor drive signal input from the FAN8034 (IC401)
141	VSSA0	—	Ground terminal (for analog system)
142, 143	ADC5, ADC6	I	A/D converter input terminal
144	ADC7	I	Monitor signal input from the SP3728AC (IC001)
145	VDDD0 3.3V	—	Power supply terminal (+3.3V) (for A/D converter)
146	VSSD0	—	Ground terminal (for A/D converter)
147	VRBA	I	A/D converter reference input terminal
148	VSSA0	—	Ground terminal (for analog system)
149	TESTAA	O	ASW output terminal Not used (open)
150	VDDA0 3.3V	—	Power supply terminal (+3.3V) (for analog system)

Pin No.	Pin Name	I/O	Description
151	VRTA	I	A/D converter reference input terminal
152	VSS	—	Ground terminal (for digital system)
153 to 155	TESTK0 to TESTK2	I	Test signal input terminal (fixed at “L”)
156	XDSPRST	I	DSP reset signal input from the system controller (IC103) “L”: reset
157	XARPRST	I	ARP reset signal input from the system controller (IC103) “L”: reset
158	VSS	—	Ground terminal (for digital system)
159	MDS0	O	Spindle motor drive signal output to the FAN8034 (IC401)
160	MON	O	Motor ON/OFF signal output terminal Not used (open)
161	MDP0	O	Spindle motor drive signal output to the FAN8034 (IC401)
162	DFCT	O	Defect detection signal output terminal
163	JITPWM	O	Jitter PWM signal output terminal Not used (open)
164	LOCK	O	EFM lock detection signal output terminal Not used (open)
165	VDD1 1.8V	—	Power supply terminal (+1.8V) (for digital system)
166	GIO0/INT2	I	Inlimit sensor input terminal
167	GIO1/INT3	O	Spindle motor drive control signal output to the FAN8034 (IC401)
168	GIO2/INT4	I	TSD-M signal input from the FAN8034 (IC401)
169	GIO3/INT5	—	Not used (open)
170	VDD 3.3V	—	Power supply terminal (+3.3V) (for digital system)
171	GIO4/PGREF	—	Not used (open)
172	GIO5/PGIN	I	Monitor signal input from the SP3728AC (IC001)
173	GIO6/SDI	I	Serial data input from the SP3728AC (IC001)
174	GIO7/SDO	O	Serial data output to the SP3728AC (IC001)
175	GIO8/SCK	O	Serial clock signal output to the SP3728AC (IC001)
176	GIO9/FGREF	O	Motor drive signal output terminal Not used
177	GIO10/FGIN	O	Motor drive signal output terminal Not used
178	GIO11/TMC2	—	Not used (open)
179	GIO12	—	Not used (open)
180	GIO13	O	Serial data enable signal output to the SP3728AC (IC001)
181	VSS	—	Ground terminal (for digital system)
182	CLKIN	I	Clock signal input terminal
183	VSSA5	—	Ground terminal (for analog system)
184	VDDA5 1.8V	—	Power supply terminal (+1.8V) (for analog system)
185	DFCTI	I	Defect signal input from the SP3728AC (IC001)
186	VSS	—	Ground terminal (for digital system)
187	MCKI	I	Clock signal input terminal
188	VDD 1.8V	—	Power supply terminal (+1.8V) (for digital system)
189	SCKI	I	Clock signal input terminal
190	VSS	—	Ground terminal (for digital system)
191	TRST	I	Reset signal input terminal (for JTAG boundary scan)
192	TMS	I	MS signal input terminal (for JTAG boundary scan)
193	TDI	I	Serial data input terminal (for JTAG boundary scan)
194	TCK	I	Clock signal input terminal (for JTAG boundary scan)
195	TDO	O	Serial data output terminal (for JTAG boundary scan)
196	TZC	I	Tracking zero crossing signal input from the SP3728AC (IC001)
197	MIRR	I	Mirror detect signal input terminal from the SP3728AC (IC001)

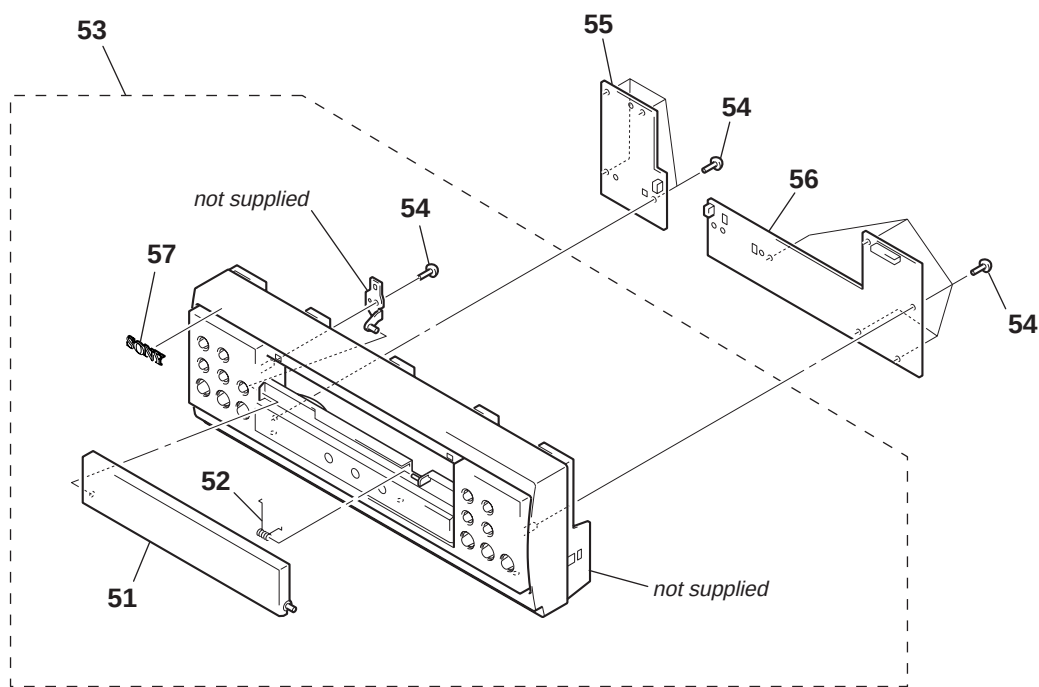
Pin No.	Pin Name	I/O	Description
198, 199	PWM0, PWM1	O	Sled motor drive signal output to the FAN8034 (IC401)
200	PWM2	O	Motor drive signal output terminal Not used
201	VDD 3.3V	—	Power supply terminal (+3.3V) (for digital system)
202, 203	PDM0, PDM1	O	Tracking coil drive signal output to the FAN8034 (IC401)
204, 205	PDM2, PDM3	O	Focusing coil drive signal output to the FAN8034 (IC401)
206	VSS	—	Ground terminal (for digital system)
207	XWR	I	Write enable signal input terminal
208	XRD	I	Read enable signal input terminal

• MAIN BOARD IC401 M30622MAA-B33FP (INTERFACE CONTROLLER)

Pin No.	Pin Name	I/O	Description
1 to 7	NC	—	Not used (open)
8	BYTE	I	External data bus line byte selection signal input “L”: 16 bits, “H”: 8 bits Not used (fixed at “L”)
9	CNVSS	—	Processor mode switch terminal (for test)
10	NC	—	Not used (fixed at “L”)
11	NC	—	Not used (open)
12	RESET	I	System reset signal input terminal
13	X-OUT	O	System clock output terminal (16 MHz)
14	VSS	—	Ground terminal
15	X-IN	I	System clock input terminal (16 MHz)
16	VCC	—	Power supply terminal (+5V)
17	NMI	I	Non-maskable interrupt input terminal Not used (fixed at “H”)
18	NC	—	Not used (open)
19	SYS CS	I	Chip select signal input from the system controller (IC103)
20 to 28	NC	—	Not used (open)
29	IIC-CLK	I/O	Communication data reading clock signal input or transfer clock signal output terminal
30	IIC-DATA	I/O	Communication data bus terminal
31	TXD1	I	Serial data input terminal (for test)
32	RXD1	O	serial data output terminal (for test)
33	CLK1	O	Serial clock signal output terminal (for test)
34	RTS1	O	RTS signal output terminal (for test)
35	SYS DATAOUT	O	serial data output to the system controller (IC103)
36	SYS DATAIN	I	serial data input from the system controller (IC103)
37	SYS CLK	O	Serial clock signal output to the system controller (IC103)
38	SYS POWER	O	Power ON/OFF control signal output terminal “H”: ON Not used (open)
39	NC	—	Not used (open)
40	SYS RST	O	System reset signal output terminal “L”: reset
41	NO-USE	—	Not used (fixed at “L”)
42	SYS RQ	O	Interrupt request signal output to the system controller (IC103)
43	SYS OK	O	System OK signal output to the system controller (IC103)
44	P.CONT	O	Power block ON/OFF control signal output terminal “H”: ON
45	NC	—	Not used (open)
46	NC	—	Not used (fixed at “H”)
47	DVDFRCHK	O	Flash memory (for DVD) check signal output terminal Not used (fixed at “H”)
48	VMUTE	O	Mute signal output to the video buffer (IC701) “H”: mute
49, 50	NC	—	Not used (open)
51	NC	—	Not used (fixed at “H”)
52	NC	—	Not used (open)
53	B-TRIG	O	Deck-B trigger plunger drive signal output terminal “H”: trigger plunger on
54	ECO CHECK	—	Not used (fixed at “H”)
55	A-TRIG	O	Deck-A trigger plunger drive signal output terminal “H”: trigger plunger on
56 to 58	NC	—	Not used (open)
59	REC/PB/PASS	O	Recording/playback/pass selection signal output terminal “L”: recording, center voltage: playback, “H”: pass
60, 61	NC	—	Not used (open)

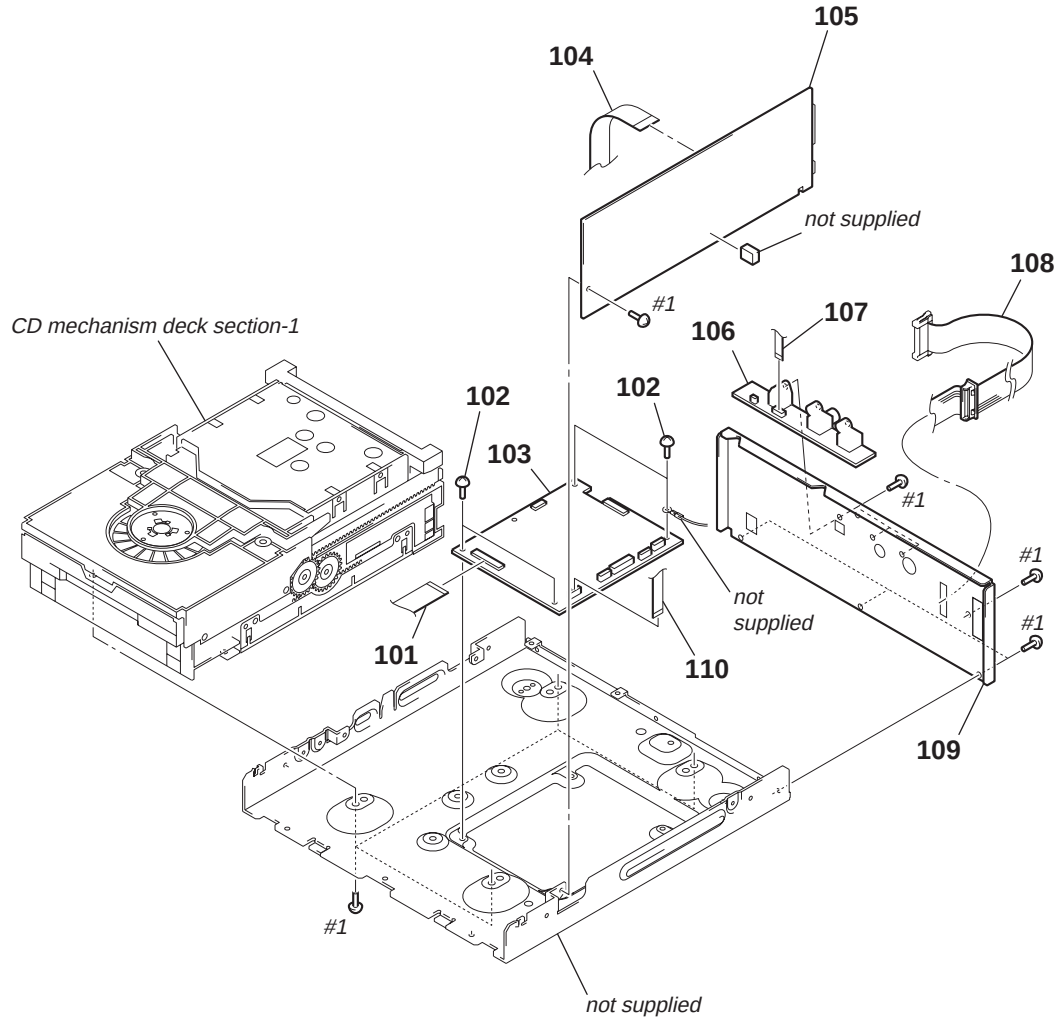
Pin No.	Pin Name	I/O	Description
62	VCC	—	Power supply terminal (+5V)
63	SOFT-TEST	O	For software check terminal Not used (open)
64	VSS	—	Ground terminal
65 to 68	LED_DISC1	O	LED drive signal output of the ① indicator (D705) “L”: LED on
69 to 72	LED_DISC2	O	LED drive signal output of the ② indicator (D704) “L”: LED on
73 to 76	LED_DISC3	O	LED drive signal output of the ③ indicator (D703) “L”: LED on
77 to 80	LED_PLAY	O	LED drive signal output of the ► indicator (D702) “L”: LED on
81 to 83	LED_PAUSE	O	LED drive signal output of the ■ indicator (D701) “L”: LED on
84	EXP-IN DATA	I	Serial data input terminal
85	EXP-OUT DATA	O	Serial data output terminal
86	EXP-LAT	O	Serial data latch pulse signal output terminal
87	EXP-CLK	O	Serial clock signal output terminal
88	LED_PAUSE	O	LED drive signal output of the ■ indicator (D701) “L”: LED on
89	A-SHUT	I	Shut off (deck-A) detection signal input terminal
90	B-SHUT	I	Shut off (deck-B) detection signal input terminal
91	B-HALF	I	Detection input terminal from the deck-B cassette detect switch “L”: cassette in
92	MODEL-IN	I	Model destination setting terminal
93	PWRCHK	—	Power check terminal Fixed at “H”
94	KEY2	I	Key input terminal
95	KEY1	I	Key (S711 to S720) input terminal (A/D input)
96	AVSS	—	Ground terminal (for A/D converter)
97	KEY0	I	Key (S701 to S708) input terminal (A/D input)
98	VREF	I	Reference voltage (+5V) input terminal (for A/D converter)
99	AVCC	—	Power supply terminal (+5V) (for A/D converter)
100	NC	—	Not used (open)

7-2. FRONT PANEL SECTION



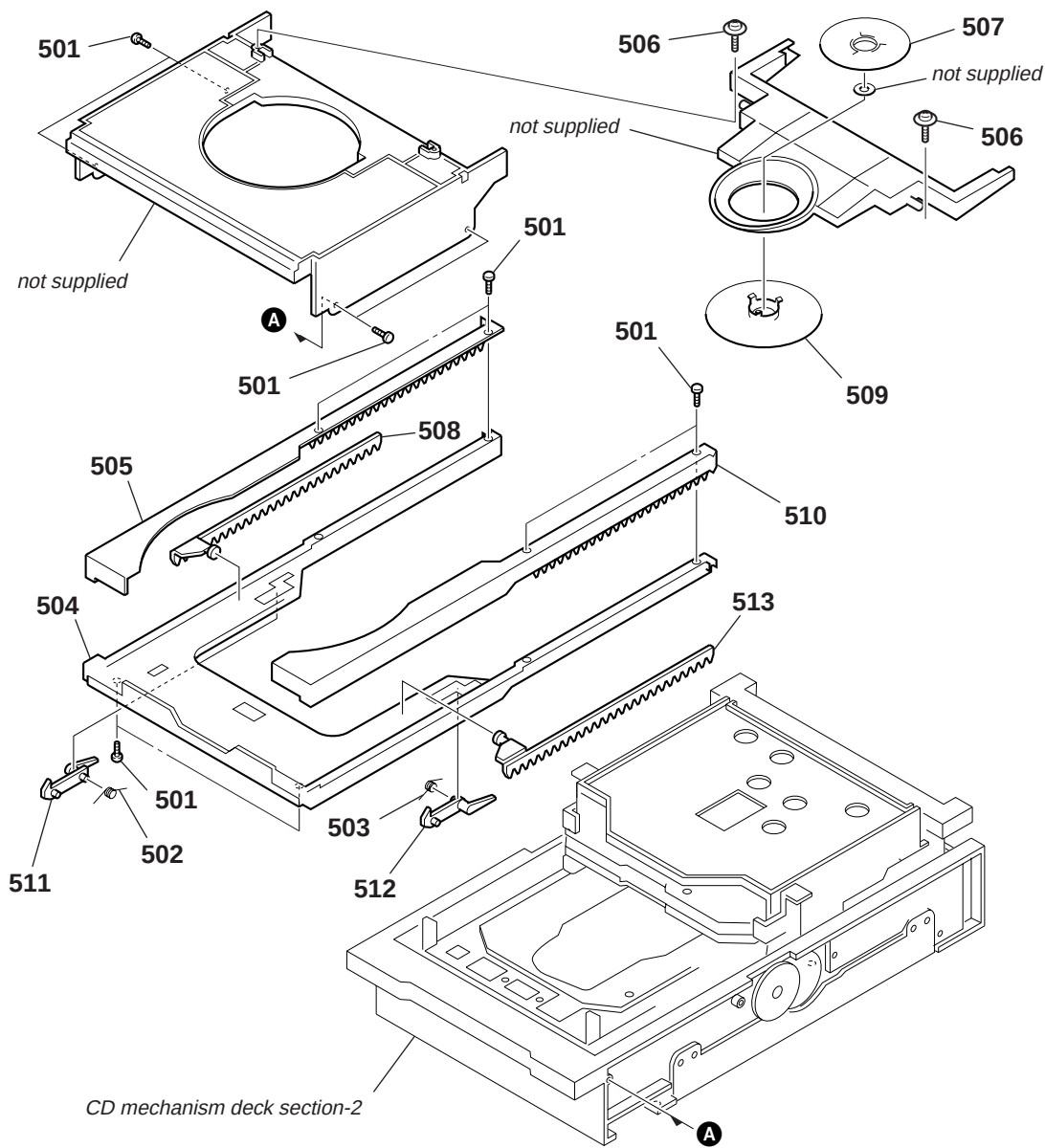
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51	4-233-136-21	LID (CD)		55	1-682-814-11	SUB PANEL BOARD	
52	4-233-147-01	SPRING (CD)		56	1-682-812-11	PANEL BOARD	
53	X-4953-614-1	PANEL ASSY, FRONT		57	4-963-404-21	EMBLEM (5-A), SONY (TH)	
54	4-951-620-01	SCREW (2.6X8), +BVTP					

7-3. CHASSIS SECTION



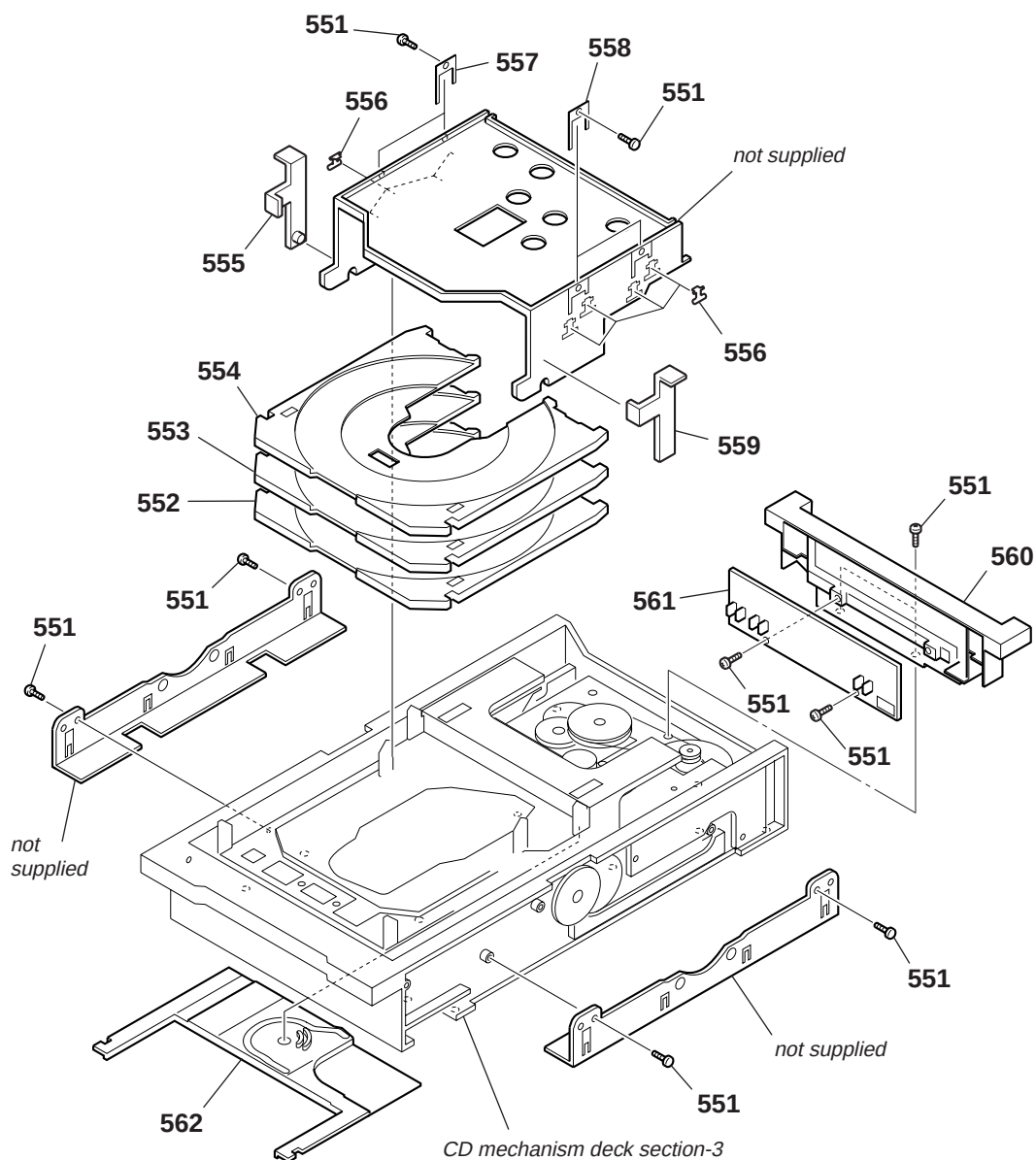
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
101	1-823-609-11	WIRE (FLAT TYPE) (25 CORE)		109	4-236-808-01	PANEL (DVD), BACK (AEP)	
102	3-970-608-01	SUMITITE (B3), +BV		109	4-236-808-11	PANEL (DVD), BACK (UK)	
103	A-4727-239-A	MB BOARD, COMPLETE (AEP, UK)		109	4-236-808-31	PANEL (DVD), BACK (KR)	
103	A-4727-244-A	MB BOARD, COMPLETE (AUS)		109	4-236-808-41	PANEL (DVD), BACK (SP)	
103	A-4727-246-A	MB BOARD, COMPLETE (E, MX)		109	4-236-808-51	PANEL (DVD), BACK (EA)	
103	A-4727-248-A	MB BOARD, COMPLETE (EA)		109	4-236-808-61	PANEL (DVD), BACK (AUS)	
103	A-4727-252-A	MB BOARD, COMPLETE (KR, SP, TH)		109	4-236-808-71	PANEL (DVD), BACK (TH)	
104	1-823-608-11	WIRE (FLAT TYPE) (10 CORE)		109	4-236-808-81	PANEL (DVD), BACK (E)	
105	A-4727-237-A	MAIN BOARD, COMPLETE		109	4-236-808-91	PANEL (DVD), BACK (MX)	
106	A-4727-238-A	VIDEO BOARD, COMPLETE		110	1-823-611-11	WIRE (FLAT TYPE) (9 CORE)	
107	1-823-607-11	WIRE (FLAT TYPE) (8 CORE)		#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
108	1-757-633-11	CORD (WITH CONNECTOR) 17P					

7-4. CD MECHANISM DECK SECTION-1
(CDM63D)



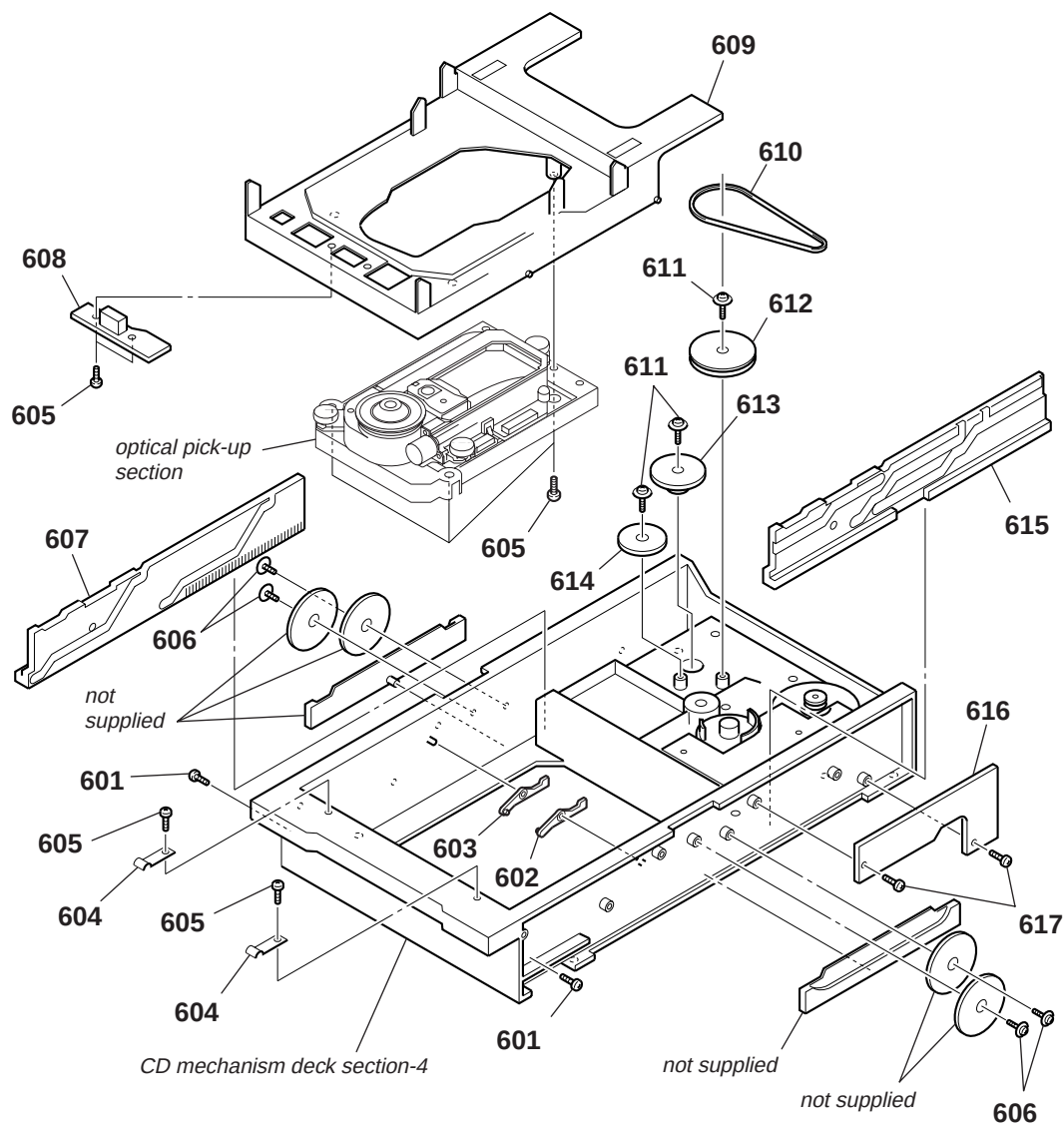
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
501	4-218-253-01	SCREW (M2.6), +BTTP		508	4-228-986-02	RACK (TRAY.L)	
502	4-228-996-01	SPRING (R), TORSION		509	4-231-858-01	PULLEY (B.DVD)	
503	4-228-995-01	SPRING (L), TORSION		510	4-228-978-02	COVER (TRAY.R)	
504	4-228-972-02	TRAY (MAIN)		511	4-228-990-03	LEVER (SUB.L)	
505	4-228-975-02	COVER (TRAY.L)		512	4-228-991-03	LEVER (SUB.R)	
506	4-985-672-01	SCREW (+PTPWH M2.6), FLOATING		513	4-228-987-02	RACK (TRAY.R)	
507	4-234-121-01	PULLEY (A) (DVD), CHUCKING					

7-5. CD MECHANISM DECK SECTION-2 (CDM63D)



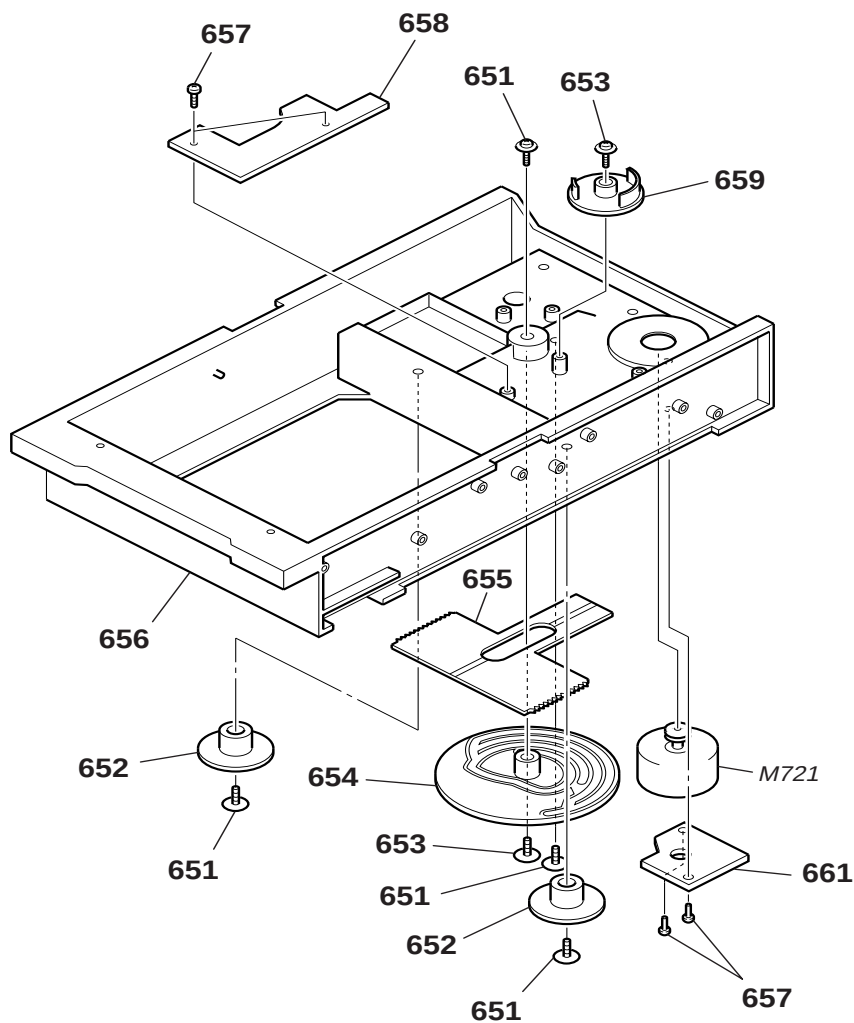
Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
551	4-218-253-01	SCREW (M2.6), +BTTP		557	4-234-423-01	SPRING (STOCKER L), LEAF	
552	4-228-970-22	TRAY (SUB)		558	4-228-980-01	SPRING (STOCKER), LEAF	
553	4-228-970-12	TRAY (SUB)		559	4-228-964-01	SLIDER (STOCKER.R)	
554	4-228-970-02	TRAY (SUB)		560	4-229-001-01	HOLDER (SENSOR)	
555	4-228-963-01	SLIDER (STOCKER.L)		561	1-678-457-11	TRAY SENSOR BOARD	
556	4-228-981-02	STOPPER (TRAY)		562	4-228-993-05	SLIDER (LOADING)	

7-6. CD MECHANISM DECK SECTION-3
(CDM63D)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
601	4-218-253-71	SCREW (M2.6), +BTTP		610	4-228-968-01	BELT	
602	4-229-000-02	LEVER (MAIN.R)		611	4-218-254-21	SCREW (M2.6), +PTPWH	
603	4-228-999-02	LEVER (MAIN.L)		612	4-229-003-01	PULLEY	
604	4-228-969-02	SPRING (TABLE), LEAF		613	4-228-997-02	GEAR (CAM)	
605	4-218-253-01	SCREW (M2.6), +BTTP		614	4-228-985-01	GEAR (PULLEY)	
606	4-985-672-01	SCREW (+PTPWH M2.6), FLOATING		615	4-228-976-01	SLIDER (BU.R)	
607	4-228-977-01	SLIDER (BU.L)		616	1-678-460-11	DRIVER BOARD	
608	1-678-463-11	DISK SENSOR BOARD		617	4-218-253-61	SCREW (M2.6), +BTTP	
609	4-231-520-01	HOLDER (BU DVD)					

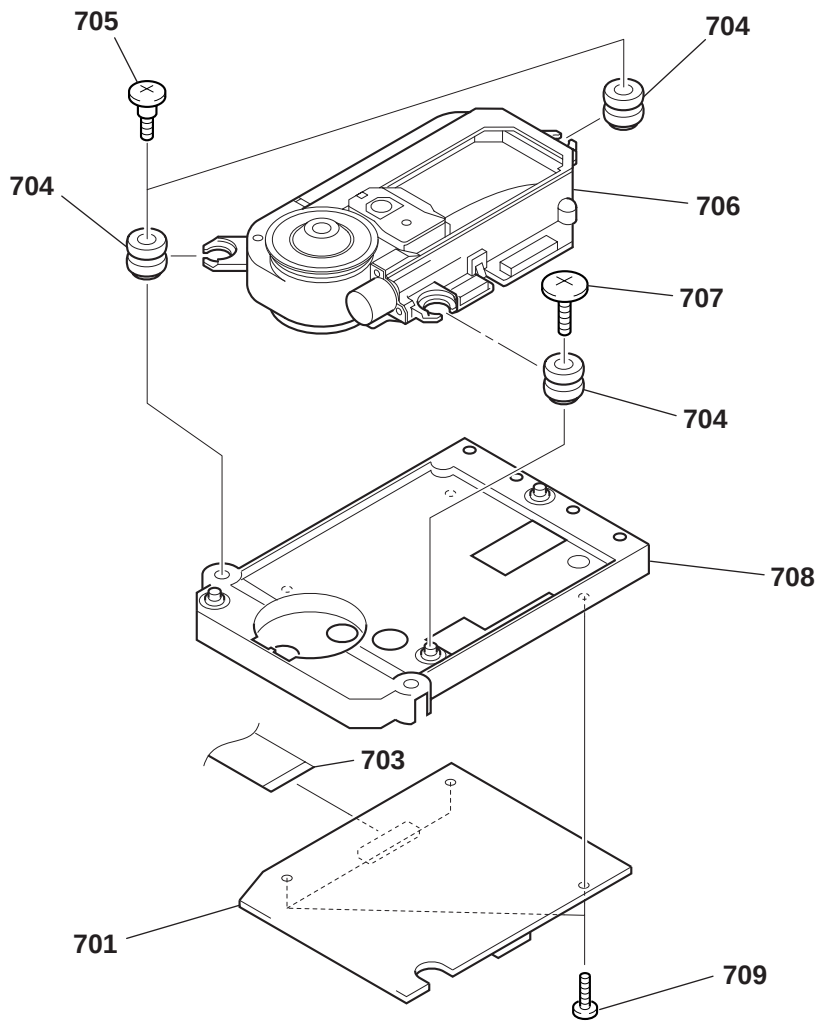
7-7. CD MECHANISM DECK SECTION-4 (CDM63D)



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
651	4-985-672-01	SCREW (+PTPWH M2.6), FLOATING		657	4-218-253-01	SCREW (M2.6), +BTTP	
652	4-229-002-02	GEAR (SLIDER)		658	1-678-462-11	IN OUT SW BOARD	
653	4-218-254-21	SCREW (M2.6), +PTPWH		659	4-228-998-01	GEAR (DETECTION)	
654	4-228-971-01	CAM		661	1-678-461-11	MOTOR BOARD	
655	4-228-974-02	RACK (CENTER)		M721	X-4952-971-2	MOTOR ASSY (LOADING)	
656	4-228-988-01	CHASSIS					

7-8. OPTICAL PICK-UP SECTION

- Refer to servicing notes (page 4) for discrimination of TYPE A/B.



The components identified by mark Δ or dotted line with mark Δ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
701	A-4727-278-A	RF BOARD, COMPLETE		Δ 706	A-6062-709-A	SERVICE ASSY, KHM-270AAA (TYPE B)	
703	1-823-610-11	WIRE (FLAT TYPE) (26 CORE)		707	4-236-450-01	SCREW (L), STEP	
704	3-053-847-01	INSULATOR		708	4-236-467-01	BASE (DVD), FITTING	
705	4-981-923-01	SCREW (M), STEP		709	4-951-620-01	SCREW (2.6X8), BVTP	
Δ 706	8-820-144-06	OPTICAL PICK-UP KHM-240AAA/J1RP	(TYPE A)				

SECTION 8
ELECTRICAL PARTS LIST

DISC SENSOR

DRIVER

IN OUT SW

MAIN

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
All resistors are in ohms.
METAL: Metal-film resistor.
METAL OXIDE: Metal oxide-film resistor.
F: nonflammable
- Refer to servicing notes (page 4) for discrimination of TYPE A/B.

- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
In each case, u: μ , for example:
uA. . : μ A. . uPA. . : μ PA. .
uPB. . : μ PB. . uPC. . : μ PC. .
uPD. . : μ PD. .

CAPACITORS

- uF: μ F
- COILS
uH: μ H
- Abbreviation
AUS : Australian model
EA : Saudi Arabia model
KR : Korean model

The components identified by mark Δ or dotted line with mark Δ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
	1-678-463-11	DISC SENSOR BOARD *****			1-678-462-11	IN OUT SW BOARD *****	
		< PHOTO REFLECTOR >				< SWITCH >	
IC751	8-749-924-30	PHOTO REFLECTOR GP2S28 (DISC IN DETECT)		S741	1-771-821-11	SWITCH, PUSH (1 KEY) (IN)	
		< RESISTOR >		S742	1-771-821-11	SWITCH, PUSH (1 KEY) (OUT)	
		*****				*****	
R751	1-249-407-11	CARBON 150 5% 1/4W		A-4727-237-A	MAIN BOARD, COMPLETE	*****	
		*****				< CAPACITOR >	
	1-678-460-11	DRIVER BOARD *****		C101	1-164-159-11	CERAMIC 0.1uF 50V	
		< CAPACITOR >		C102	1-164-159-11	CERAMIC 0.1uF 50V	
C701	1-124-261-00	ELECT 10uF 20% 50V		C401	1-126-934-11	ELECT 220uF 20% 10V	
C705	1-124-261-00	ELECT 10uF 20% 50V		C402	1-126-934-11	ELECT 220uF 20% 10V	
C706	1-164-159-11	CERAMIC 0.1uF 50V		C403	1-164-159-11	CERAMIC 0.1uF 50V	
C707	1-164-159-11	CERAMIC 0.1uF 50V		C404	1-164-159-11	CERAMIC 0.1uF 50V	
		< CONNECTOR >		C405	1-164-159-11	CERAMIC 0.1uF 50V	
CN701	1-785-324-11	PIN, CONNECTOR (STRAIGHT) 12P		C406	1-126-934-11	ELECT 220uF 20% 10V	
CN702	1-785-328-11	PIN, CONNECTOR (LIGHT ANGLE) 2P		C407	1-126-934-11	ELECT 220uF 20% 10V	
CN703	1-785-331-11	PIN, CONNECTOR (LIGHT ANGLE) 5P		C408	1-164-159-11	CERAMIC 0.1uF 50V	
CN704	1-785-329-11	PIN, CONNECTOR (LIGHT ANGLE) 3P		C411	1-164-159-11	CERAMIC 0.1uF 50V	
CN705	1-785-329-21	PIN, CONNECTOR (LIGHT ANGLE) 3P		C425	1-162-282-31	CERAMIC 100PF 10% 50V	
		< IC >		C427	1-162-282-31	CERAMIC 100PF 10% 50V	
IC701	8-759-598-69	IC BA6956AN		C500	1-164-159-11	CERAMIC 0.1uF 50V	
		< TRANSISTOR >		C501	1-126-768-11	ELECT 2200uF 20% 16V	
Q701	8-729-029-66	TRANSISTOR RT1N141S-TP		C502	1-126-935-11	ELECT 470uF 20% 10V	
		< RESISTOR >		C504	1-164-159-11	CERAMIC 0.1uF 50V	
R701	1-249-429-11	CARBON 10K 5% 1/4W		C505	1-164-159-11	CERAMIC 0.1uF 50V	
R702	1-249-401-11	CARBON 47 5% 1/4W		C506	1-164-159-11	CERAMIC 0.1uF 50V	
R705	1-249-435-11	CARBON 33K 5% 1/4W		C507	1-164-159-11	CERAMIC 0.1uF 50V	
R706	1-249-417-11	CARBON 1K 5% 1/4W		C508	1-126-964-11	ELECT 10uF 20% 50V	
R707	1-249-429-11	CARBON 10K 5% 1/4W		C509	1-126-935-11	ELECT 470uF 20% 10V	
		*****		C512	1-164-159-11	CERAMIC 0.1uF 50V	
		*****		C513	1-126-935-11	ELECT 470uF 20% 10V	
		*****		C514	1-126-947-11	ELECT 47uF 20% 10V	
		*****		C557	1-164-159-11	CERAMIC 0.1uF 50V	
		*****				< CONNECTOR >	
		*****		* CN101	1-568-419-11	PIN, CONNECTOR 9P	
		*****		CN102	1-568-373-11	PIN, CONNECTOR 8P	
		*****		CN103	1-566-859-11	SOCKET, CONNECTOR 15P	
		*****				(SYSTEM CONTROL 5 FROM TC-S9)	

Ref. No.	Part No.	Description	Remark			
CN107	1-779-278-11	CONNECTOR, FFC (LIF (NON-ZIF)) 10P				
* CN401	1-568-936-11	PIN, CONNECTOR 9P				
CN501	1-506-469-11	PIN, CONNECTOR 4P				
* CN503	1-568-937-11	PIN, CONNECTOR 10P				
< DIODE >						
D105	8-719-911-19	DIODE 1SS133T-72				
D501	8-719-024-99	DIODE 11ES2-NTA2B				
D502	8-719-024-99	DIODE 11ES2-NTA2B				
D503	8-719-024-99	DIODE 11ES2-NTA2B				
D504	8-719-024-99	DIODE 11ES2-NTA2B				
D505	8-719-911-19	DIODE 1SS133T-72				
D512	8-719-024-99	DIODE 11ES2-NTA2B				
D513	8-719-024-99	DIODE 11ES2-NTA2B				
D514	8-719-024-99	DIODE 11ES2-NTA2B				
< FERRITE BEAD >						
FB501	1-412-473-21	FERRITE BEAD				
FB502	1-412-473-21	FERRITE BEAD				
FB503	1-412-473-21	FERRITE BEAD				
< IC >						
IC401	6-800-720-01	IC M30622MAA-B33FP				
IC501	8-759-071-48	IC TA7807S				
IC502	8-759-604-35	IC M5F78M05L				
< CONNECTOR >						
* NO104	1-568-936-11	PIN, CONNECTOR 9P				
< RESISTOR >						
R101	1-247-807-31	CARBON	100	5%	1/4W	
R102	1-247-807-31	CARBON	100	5%	1/4W	
R103	1-249-417-11	CARBON	1K	5%	1/4W	
R104	1-247-807-31	CARBON	100	5%	1/4W	
R132	1-247-876-11	CARBON	75K	5%	1/4W	
R133	1-247-876-11	CARBON	75K	5%	1/4W	
R134	1-249-417-11	CARBON	1K	5%	1/4W	
R409	1-249-429-11	CARBON	10K	5%	1/4W	
R411	1-249-409-11	CARBON	220	5%	1/4W	
R412	1-249-425-11	CARBON	4.7K	5%	1/4W	
R413	1-249-411-11	CARBON	330	5%	1/4W	
R417	1-249-429-11	CARBON	10K	5%	1/4W	
R419	1-249-409-11	CARBON	220	5%	1/4W	
R425	1-249-425-11	CARBON	4.7K	5%	1/4W	
R427	1-249-425-11	CARBON	4.7K	5%	1/4W	
R429	1-247-807-31	CARBON	100	5%	1/4W	
R430	1-247-807-31	CARBON	100	5%	1/4W	
R431	1-249-409-11	CARBON	220	5%	1/4W	
R432	1-249-409-11	CARBON	220	5%	1/4W	
R433	1-249-409-11	CARBON	220	5%	1/4W	
R434	1-249-409-11	CARBON	220	5%	1/4W	
R435	1-249-409-11	CARBON	220	5%	1/4W	
R436	1-249-409-11	CARBON	220	5%	1/4W	
R437	1-249-409-11	CARBON	220	5%	1/4W	
R440	1-249-409-11	CARBON	220	5%	1/4W	
R441	1-249-429-11	CARBON	10K	5%	1/4W	
R442	1-249-409-11	CARBON	220	5%	1/4W	

Ref. No.	Part No.	Description	Remark			
R443	1-249-409-11	CARBON	220	5%	1/4W	
R444	1-249-409-11	CARBON	220	5%	1/4W	
R447	1-249-409-11	CARBON	220	5%	1/4W	
R448	1-249-409-11	CARBON	220	5%	1/4W	
R451	1-249-429-11	CARBON	10K	5%	1/4W	
R453	1-249-409-11	CARBON	220	5%	1/4W	
R454	1-249-429-11	CARBON	10K	5%	1/4W	
R455	1-249-409-11	CARBON	220	5%	1/4W	
R456	1-249-429-11	CARBON	10K	5%	1/4W	
R457	1-249-429-11	CARBON	10K	5%	1/4W	
R459	1-249-409-11	CARBON	220	5%	1/4W	
R465	1-249-407-11	CARBON	150	5%	1/4W	
R469	1-249-407-11	CARBON	150	5%	1/4W	
R473	1-249-407-11	CARBON	150	5%	1/4W	
R477	1-249-407-11	CARBON	150	5%	1/4W	
R480	1-249-441-11	CARBON	100K	5%	1/4W	
R481	1-249-407-11	CARBON	150	5%	1/4W	
R482	1-249-429-11	CARBON	10K	5%	1/4W	
R483	1-249-429-11	CARBON	10K	5%	1/4W	
R484	1-249-409-11	CARBON	220	5%	1/4W	
R485	1-249-409-11	CARBON	220	5%	1/4W	
R486	1-249-409-11	CARBON	220	5%	1/4W	
R487	1-249-409-11	CARBON	220	5%	1/4W	
R488	1-249-409-11	CARBON	220	5%	1/4W	
R489	1-249-409-11	CARBON	220	5%	1/4W	
R490	1-249-409-11	CARBON	220	5%	1/4W	
R491	1-249-409-11	CARBON	220	5%	1/4W	
R492	1-249-425-11	CARBON	4.7K	5%	1/4W	
R493	1-249-415-11	CARBON	680	5%	1/4W	
R494	1-247-807-31	CARBON	100	5%	1/4W	
R495	1-249-410-11	CARBON	270	5%	1/4W	
R496	1-249-429-11	CARBON	10K	5%	1/4W	
R497	1-249-410-11	CARBON	270	5%	1/4W	
R567	1-249-441-11	CARBON	100K	5%	1/4W	
< VIBRATOR >						
X401	1-781-107-21	VIBRATOR, CERAMIC (16MHz)				

		A-4727-239-A	MB BOARD, COMPLETE (AEP, UK)			
		A-4727-244-A	MB BOARD, COMPLETE (AUS)			
		A-4727-246-A	MB BOARD, COMPLETE (E, MX)			
		A-4727-248-A	MB BOARD, COMPLETE (EA)			
		A-4727-252-A	MB BOARD, COMPLETE (KR, SP, TH)			

< CAPACITOR >						
C004	1-126-204-11	ELECT CHIP	47uF	20%	16V	
C005	1-126-246-11	ELECT CHIP	220uF	20%	4V	
C006	1-126-204-11	ELECT CHIP	47uF	20%	16V	
C007	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V	
C018	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	
C019	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	
C103	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C104	1-126-209-11	ELECT CHIP	100uF	20%	4V	
C105	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C106	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C107	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V	

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
C108	1-162-917-11	CERAMIC CHIP	15PF	5%	50V	C350	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C109	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C351	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C110	1-126-209-11	ELECT CHIP	100uF	20%	4V	C352	1-126-204-11	ELECT CHIP	47uF	20%	16V
C111	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C401	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V
C112	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C402	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C113	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C403	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C114	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C404	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C116	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C405	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C119	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C406	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C124	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C407	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C202	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C408	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C203	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C411	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C204	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C412	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C205	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C413	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C206	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C414	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C207	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C415	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C301	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C416	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C304	1-126-246-11	ELECT CHIP	220uF	20%	4V	C417	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C305	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C418	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C306	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	C419	1-126-204-11	ELECT CHIP	47uF	20%	16V
C307	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C420	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C309	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	C429	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C310	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	C430	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C311	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	C501	1-126-193-11	ELECT	1uF	20%	50V
C312	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C502	1-117-370-11	CERAMIC CHIP	10uF		10V
C313	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V	C503	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C315	1-162-927-11	CERAMIC CHIP	100PF	5%	50V	C504	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C317	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C505	1-117-370-11	CERAMIC CHIP	10uF		10V
C318	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C506	1-117-370-11	CERAMIC CHIP	10uF		10V
C319	1-110-563-11	CERAMIC CHIP	0.068uF	10%	16V	C508	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C320	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C509	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C321	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C510	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C322	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C511	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C323	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C512	1-126-246-11	ELECT CHIP	220uF	20%	4V
C324	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C513	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C325	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C514	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C326	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C516	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C327	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C518	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C328	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C519	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C331	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C520	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C332	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C521	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C333	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C522	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C334	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C523	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C335	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C524	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C336	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C525	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C337	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C526	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C338	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C529	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C339	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C530	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C340	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C531	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C341	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C532	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C342	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C533	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C343	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C534	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C344	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C535	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C345	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C536	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C346	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	C537	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C347	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C538	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C348	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C539	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C349	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V						

Ref. No.	Part No.	Description	Remark			
C540	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C541	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C542	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C545	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C546	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C547	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C701	1-126-206-11	ELECT CHIP	100uF	20%	6.3V	
C702	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	
C711	1-162-918-11	CERAMIC CHIP	18PF	5%	50V	
C712	1-162-921-11	CERAMIC CHIP	33PF	5%	50V	
C716	1-162-918-11	CERAMIC CHIP	18PF	5%	50V	
C717	1-162-921-11	CERAMIC CHIP	33PF	5%	50V	
C721	1-162-918-11	CERAMIC CHIP	18PF	5%	50V	
C722	1-162-921-11	CERAMIC CHIP	33PF	5%	50V	
C741	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	
C742	1-126-206-11	ELECT CHIP	100uF	20%	6.3V	
C743	1-124-778-00	ELECT CHIP	22uF	20%	6.3V	
C744	1-126-206-11	ELECT CHIP	100uF	20%	6.3V	
C745	1-124-778-00	ELECT CHIP	22uF	20%	6.3V	
C764	1-126-193-11	ELECT	1uF	20%	50V	
C765	1-126-193-11	ELECT	1uF	20%	50V	
C766	1-126-193-11	ELECT	1uF	20%	50V	
< CONNECTOR >						
CN008	1-779-992-11	PIN, CONNECTOR (PWB) 8P				
CN010	1-784-875-21	CONNECTOR, FFC (LIF (NON-ZIF)) 25P				
CN012	1-784-860-21	CONNECTOR, FFC (LIF (NON-ZIF)) 8P				
CN015	1-784-368-11	CONNECTOR, FFC/FPC 9P				
CN101	1-784-369-21	CONNECTOR, FFC/FPC 10P				
CN103	1-793-687-11	PIN, CONNECTOR (1.5mm) (SMD) 5P				
* CN203	1-764-007-11	PIN, CONNECTOR (SMD) 12P				
CN404	1-793-687-11	PIN, CONNECTOR (1.5mm) (SMD) 5P				
< FERRITE BEAD/RESISTOR >						
FB007	1-469-324-21	FERRITE BEAD				
FB008	1-469-324-21	FERRITE BEAD				
FB009	1-469-324-21	FERRITE BEAD				
FB010	1-469-324-21	FERRITE BEAD				
FB011	1-469-324-21	FERRITE BEAD				
FB012	1-469-324-21	FERRITE BEAD				
FB112	1-216-864-11	METAL CHIP	0	5%	1/16W	
FB711	1-216-864-11	METAL CHIP	0	5%	1/16W	
FB712	1-216-864-11	METAL CHIP	0	5%	1/16W	
FB714	1-216-864-11	METAL CHIP	0	5%	1/16W	
< EMI FILTER >						
FL003	1-234-177-21	FILTER, CHIP EMI				
FL004	1-234-177-21	FILTER, CHIP EMI				
FL005	1-233-893-21	FILTER, CHIP EMI				
FL101	1-233-893-21	FILTER, CHIP EMI				
FL102	1-233-893-21	FILTER, CHIP EMI				
FL103	1-233-893-21	FILTER, CHIP EMI				
FL202	1-233-893-21	FILTER, CHIP EMI				
FL203	1-233-893-21	FILTER, CHIP EMI				
FL204	1-234-177-21	FILTER, CHIP EMI				
FL501	1-233-893-21	FILTER, CHIP EMI				
FL502	1-233-893-21	FILTER, CHIP EMI				
FL505	1-234-177-21	FILTER, CHIP EMI				

Ref. No.	Part No.	Description	Remark			
< IC >						
IC006	6-700-398-01	IC uPC2918T-E1				
IC101	8-759-640-41	IC BR24C08F-E2				
IC102	8-759-831-81	IC IMIC6001BTD				
IC103	8-759-829-75	IC MB91307APFV-G-BND-E1				
IC106	8-759-645-76	IC TC74VHCT32AFT				
IC107	8-759-826-41	IC MBM29DL324BE-90PFTN				
IC202	6-700-740-01	IC LC22004A-RJ6-TBM-E				
IC301	8-759-599-45	IC MM1385ENLE				
IC302	8-759-828-01	IC CXD9635R				
IC303	8-759-683-75	IC MSM51V18160F-60TSKR1				
IC401	8-759-826-42	IC FAN8034				
IC501	8-759-832-30	IC TK71518ASCL				
IC502	8-759-599-45	IC MM1385ENLE				
IC503	8-752-399-55	IC CXD1933Q				
IC504	8-759-663-74	IC HY57V161610DTC-7TR				
IC505	8-759-663-74	IC HY57V161610DTC-7TR				
IC701	8-759-680-28	IC BA7666FS-E2				
< COIL >						
L701	1-412-788-41	INDUCTOR	10uH			
L711	1-412-790-31	INDUCTOR	15uH			
L713	1-412-790-31	INDUCTOR	15uH			
L715	1-412-790-31	INDUCTOR	15uH			
< TRANSISTOR >						
Q711	8-729-027-23	TRANSISTOR	DTA114EKA-T146			
Q712	1-801-806-11	TRANSISTOR	DTC144EKA-T146			
< RESISTOR >						
R017	1-216-864-11	METAL CHIP	0	5%	1/16W	
R021	1-216-864-11	METAL CHIP	0	5%	1/16W	
R076	1-216-837-11	METAL CHIP	22K	5%	1/16W	(TYPE A)
R077	1-216-815-11	METAL CHIP	330	5%	1/16W	(TYPE A)
R077	1-216-833-11	METAL CHIP	10K	5%	1/16W	(TYPE B)
R078	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R080	1-216-801-11	METAL CHIP	22	5%	1/16W	
R101	1-216-789-11	METAL CHIP	2.2	5%	1/16W	
R105	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R106	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R107	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R109	1-216-797-11	METAL CHIP	10	5%	1/16W	
R111	1-216-817-11	METAL CHIP	470	5%	1/16W	
R112	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R113	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R114	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R116	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R117	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R118	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R119	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R121	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R123	1-216-833-11	METAL CHIP	10K	5%	1/16W	
R124	1-216-797-11	METAL CHIP	10	5%	1/16W	
R125	1-216-797-11	METAL CHIP	10	5%	1/16W	

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
R126	1-216-797-11	METAL CHIP	10	5%	1/16W	R186	1-216-833-11	METAL CHIP	10K	5%	1/16W
R128	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	R187	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R129	1-216-833-11	METAL CHIP	10K	5%	1/16W	R188	1-216-833-11	METAL CHIP	10K	5%	1/16W
R130	1-216-833-11	METAL CHIP	10K	5%	1/16W	R199	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R131	1-216-833-11	METAL CHIP	10K	5%	1/16W	R202	1-216-809-11	METAL CHIP	100	5%	1/16W
R132	1-216-833-11	METAL CHIP	10K	5%	1/16W						
R133	1-216-833-11	METAL CHIP	10K	5%	1/16W	R203	1-216-821-11	METAL CHIP	1K	5%	1/16W
R134	1-216-833-11	METAL CHIP	10K	5%	1/16W	R206	1-216-813-11	METAL CHIP	220	5%	1/16W
R136	1-216-797-11	METAL CHIP	10	5%	1/16W	R207	1-216-813-11	METAL CHIP	220	5%	1/16W
R137	1-216-797-11	METAL CHIP	10	5%	1/16W	R208	1-216-821-11	METAL CHIP	1K	5%	1/16W
R138	1-216-797-11	METAL CHIP	10	5%	1/16W	R209	1-216-821-11	METAL CHIP	1K	5%	1/16W
R140	1-216-797-11	METAL CHIP	10	5%	1/16W	R210	1-216-821-11	METAL CHIP	1K	5%	1/16W
R141	1-216-797-11	METAL CHIP	10	5%	1/16W	R211	1-216-821-11	METAL CHIP	1K	5%	1/16W
R142	1-216-797-11	METAL CHIP	10	5%	1/16W	R212	1-216-821-11	METAL CHIP	1K	5%	1/16W
R143	1-216-833-11	METAL CHIP	10K	5%	1/16W	R214	1-216-833-11	METAL CHIP	10K	5%	1/16W
R145	1-216-833-11	METAL CHIP	10K	5%	1/16W	R215	1-216-833-11	METAL CHIP	10K	5%	1/16W
R146	1-216-833-11	METAL CHIP	10K	5%	1/16W	R299	1-216-847-11	METAL CHIP	150K	5%	1/16W
R147	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	R301	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R149	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R302	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R150	1-216-821-11	METAL CHIP	1K	5%	1/16W	R305	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
					(EA)	R306	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R150	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	R307	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
					(AUS)	R308	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R150	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	R309	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
					(KR, SP, TH)	R310	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R150	1-216-835-11	METAL CHIP	15K	5%	1/16W	R311	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
					(AEP, UK)	R312	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R150	1-216-839-11	METAL CHIP	33K	5%	1/16W	R313	1-216-817-11	METAL CHIP	470	5%	1/16W
					(E, MX)	R314	1-216-817-11	METAL CHIP	470	5%	1/16W
R151	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R315	1-216-817-11	METAL CHIP	470	5%	1/16W
R152	1-216-833-11	METAL CHIP	10K	5%	1/16W	R316	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R153	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R317	1-216-833-11	METAL CHIP	10K	5%	1/16W
R154	1-216-835-11	METAL CHIP	15K	5%	1/16W	R318	1-216-864-11	METAL CHIP	0	5%	1/16W
					(AUS, E, MX)	R319	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R154	1-216-839-11	METAL CHIP	33K	5%	1/16W	R320	1-216-864-11	METAL CHIP	0	5%	1/16W
					(KR, SP, TH)	R321	1-216-817-11	METAL CHIP	470	5%	1/16W
R154	1-216-843-11	METAL CHIP	68K	5%	1/16W						
					(AEP, EA, UK)	R328	1-216-833-11	METAL CHIP	10K	5%	1/16W
R155	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R329	1-216-864-11	METAL CHIP	0	5%	1/16W
R156	1-216-833-11	METAL CHIP	10K	5%	1/16W	R330	1-216-864-11	METAL CHIP	0	5%	1/16W
R157	1-216-864-11	METAL CHIP	0	5%	1/16W	R332	1-216-864-11	METAL CHIP	0	5%	1/16W
R160	1-216-833-11	METAL CHIP	10K	5%	1/16W	R334	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R161	1-216-864-11	METAL CHIP	0	5%	1/16W						
R162	1-216-833-11	METAL CHIP	10K	5%	1/16W	R335	1-218-855-11	METAL CHIP	2.2K	0.5%	1/10W
R163	1-216-833-11	METAL CHIP	10K	5%	1/16W	R336	1-216-833-11	METAL CHIP	10K	5%	1/16W
R164	1-216-809-11	METAL CHIP	100	5%	1/16W	R337	1-216-809-11	METAL CHIP	100	5%	1/16W
R165	1-216-809-11	METAL CHIP	100	5%	1/16W	R338	1-218-879-11	METAL CHIP	22K	0.5%	1/10W
R166	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R341	1-218-871-11	METAL CHIP	10K	0.5%	1/10W
R167	1-216-821-11	METAL CHIP	1K	5%	1/16W						
R168	1-216-821-11	METAL CHIP	1K	5%	1/16W	R342	1-218-883-11	METAL CHIP	33K	0.5%	1/10W
R170	1-216-821-11	METAL CHIP	1K	5%	1/16W	R343	1-218-831-11	METAL CHIP	220	0.5%	1/10W
R172	1-216-833-11	METAL CHIP	10K	5%	1/16W	R344	1-218-847-11	METAL CHIP	1K	0.5%	1/10W
R174	1-216-797-11	METAL CHIP	10	5%	1/16W	R345	1-216-833-11	METAL CHIP	10K	5%	1/16W
R175	1-216-864-11	METAL CHIP	0	5%	1/16W	R349	1-216-838-11	METAL CHIP	27K	5%	1/16W
R179	1-216-833-11	METAL CHIP	10K	5%	1/16W						
R182	1-216-845-11	METAL CHIP	100K	5%	1/16W	R350	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R183	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	R351	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R184	1-216-833-11	METAL CHIP	10K	5%	1/16W	R352	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R185	1-216-833-11	METAL CHIP	10K	5%	1/16W	R356	1-218-853-11	METAL CHIP	1.8K	0.5%	1/10W
						R368	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
						R384	1-216-797-11	METAL CHIP	10	5%	1/16W
						R385	1-216-829-11	METAL CHIP	4.7K	5%	1/16W

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MOTOR

PANEL

Ref. No.	Part No.	Description	Remark		
R406	1-216-846-11	METAL CHIP	120K	5%	1/16W
R407	1-216-846-11	METAL CHIP	120K	5%	1/16W
R408	1-216-847-11	METAL CHIP	150K	5%	1/16W
R409	1-216-847-11	METAL CHIP	150K	5%	1/16W
R410	1-216-842-11	METAL CHIP	56K	5%	1/16W
R411	1-216-842-11	METAL CHIP	56K	5%	1/16W
R412	1-216-850-11	METAL CHIP	270K	5%	1/16W
R413	1-216-833-11	METAL CHIP	10K	5%	1/16W
R414	1-216-853-11	METAL CHIP	470K	5%	1/16W
R415	1-216-846-11	METAL CHIP	120K	5%	1/16W
R416	1-216-855-11	METAL CHIP	680K	5%	1/16W
R417	1-216-833-11	METAL CHIP	10K	5%	1/16W
R418	1-216-839-11	METAL CHIP	33K	5%	1/16W
R419	1-216-839-11	METAL CHIP	33K	5%	1/16W
R420	1-216-853-11	METAL CHIP	470K	5%	1/16W
R421	1-216-839-11	METAL CHIP	33K	5%	1/16W
R422	1-216-839-11	METAL CHIP	33K	5%	1/16W
R423	1-216-839-11	METAL CHIP	33K	5%	1/16W
R424	1-216-839-11	METAL CHIP	33K	5%	1/16W
R425	1-216-849-11	METAL CHIP	220K	5%	1/16W
R426	1-216-853-11	METAL CHIP	470K	5%	1/16W
R427	1-218-895-11	METAL CHIP	100K	0.5%	1/10W
R428	1-216-839-11	METAL CHIP	33K	5%	1/16W
R429	1-218-889-11	METAL CHIP	56K	0.5%	1/10W
R430	1-218-895-11	METAL CHIP	100K	0.5%	1/10W
R431	1-218-889-11	METAL CHIP	56K	0.5%	1/10W
R432	1-216-833-11	METAL CHIP	10K	5%	1/16W
R433	1-216-833-11	METAL CHIP	10K	5%	1/16W
R434	1-216-815-11	METAL CHIP	330	5%	1/16W
R435	1-216-833-11	METAL CHIP	10K	5%	1/16W
R439	1-216-864-11	METAL CHIP	0	5%	1/16W
R507	1-216-809-11	METAL CHIP	100	5%	1/16W
R508	1-216-864-11	METAL CHIP	0	5%	1/16W
R509	1-216-864-11	METAL CHIP	0	5%	1/16W
R510	1-216-833-11	METAL CHIP	10K	5%	1/16W
R511	1-216-813-11	METAL CHIP	220	5%	1/16W
R512	1-216-813-11	METAL CHIP	220	5%	1/16W
R513	1-216-813-11	METAL CHIP	220	5%	1/16W
R514	1-216-813-11	METAL CHIP	220	5%	1/16W
R515	1-216-813-11	METAL CHIP	220	5%	1/16W
R516	1-216-813-11	METAL CHIP	220	5%	1/16W
R517	1-216-833-11	METAL CHIP	10K	5%	1/16W
R518	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R521	1-216-864-11	METAL CHIP	0	5%	1/16W
R522	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R524	1-216-833-11	METAL CHIP	10K	5%	1/16W
R525	1-216-833-11	METAL CHIP	10K	5%	1/16W
R532	1-216-833-11	METAL CHIP	10K	5%	1/16W
R533	1-216-797-11	METAL CHIP	10	5%	1/16W
R554	1-216-797-11	METAL CHIP	10	5%	1/16W
R701	1-216-833-11	METAL CHIP	10K	5%	1/16W
R711	1-218-289-11	RES-CHIP	510	5%	1/16W
R712	1-218-289-11	RES-CHIP	510	5%	1/16W
R713	1-218-289-11	RES-CHIP	510	5%	1/16W
R717	1-218-285-11	RES-CHIP	75	5%	1/16W
R718	1-218-285-11	RES-CHIP	75	5%	1/16W
R719	1-218-285-11	RES-CHIP	75	5%	1/16W
R724	1-216-833-11	METAL CHIP	10K	5%	1/16W

Ref. No.	Part No.	Description	Remark		
R725	1-216-833-11	METAL CHIP	10K	5%	1/16W
R737	1-216-864-11	METAL CHIP	0	5%	1/16W
R738	1-216-864-11	METAL CHIP	0	5%	1/16W
R739	1-216-864-11	METAL CHIP	0	5%	1/16W
R740	1-216-864-11	METAL CHIP	0	5%	1/16W
< VARIABLE RESISTOR >					
RV501	1-223-583-11	RES, ADJ, CARBON 1K			
< VIBRATOR >					
X101	1-795-174-11	VIBRATOR, CERAMIC (16.5MHz)			
X102	1-767-519-11	VIBRATOR, CRYSTAL (27MHz)			

	1-678-461-11	MOTOR BOARD			

< CAPACITOR >					
C721	1-162-306-11	CERAMIC	0.01uF	30%	16V

	1-682-812-11	PANEL BOARD			

< DIODE >					
D701	8-719-057-97	LED SEL5923A-TP15 (■)			
D702	8-719-058-03	LED SEL5423E-TP15 (▶)			
D703	8-719-057-97	LED SEL5923A-TP15 (③ (DISC 3))			
D704	8-719-057-97	LED SEL5923A-TP15 (② (DISC 2))			
D705	8-719-057-97	LED SEL5923A-TP15 (① (DISC 1))			
< RESISTOR >					
R711	1-249-411-11	CARBON	330	5%	1/4W
R712	1-249-413-11	CARBON	470	5%	1/4W
R713	1-249-414-11	CARBON	560	5%	1/4W
R714	1-249-415-11	CARBON	680	5%	1/4W
R715	1-249-417-11	CARBON	1K	5%	1/4W
R716	1-249-418-11	CARBON	1.2K	5%	1/4W
R717	1-249-420-11	CARBON	1.8K	5%	1/4W
R718	1-249-422-11	CARBON	2.7K	5%	1/4W
R719	1-247-843-11	CARBON	3.3K	5%	1/4W
< SWITCH >					
S711	1-771-410-21	SWITCH, TACTILE (◀◀)			
S712	1-771-410-21	SWITCH, TACTILE (▶▶)			
S713	1-771-410-21	SWITCH, TACTILE (▶▶I)			
S714	1-771-410-21	SWITCH, TACTILE (I◀◀)			
S715	1-771-410-21	SWITCH, TACTILE (■)			
S716	1-771-410-21	SWITCH, TACTILE (■)			
S717	1-771-410-21	SWITCH, TACTILE (▶)			
S718	1-771-410-21	SWITCH, TACTILE (RETURN)			
S719	1-771-410-21	SWITCH, TACTILE (PREV)			
S720	1-771-410-21	SWITCH, TACTILE (NEXT)			

RF

SUB PANEL

TRAY SENSOR

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
	A-4727-278-A	RF BOARD, COMPLETE *****				< RESISTOR >	
		< CAPACITOR >		R002	1-216-809-11	METAL CHIP 100 5%	1/16W
C001	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V	R003	1-216-809-11	METAL CHIP 100 5%	1/16W
C002	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V	R005	1-216-845-11	METAL CHIP 100K 5%	1/16W
C005	1-162-966-11	CERAMIC CHIP 0.0022uF 10%	50V	R006	1-216-838-11	METAL CHIP 27K 5%	1/16W
C006	1-162-966-11	CERAMIC CHIP 0.0022uF 10%	50V	R007	1-216-803-11	METAL CHIP 33 5%	1/16W
C007	1-162-966-11	CERAMIC CHIP 0.0022uF 10%	50V				
C008	1-162-966-11	CERAMIC CHIP 0.0022uF 10%	50V	R008	1-216-803-11	METAL CHIP 33 5%	1/16W
C009	1-124-779-00	ELECT CHIP 10uF 20%	16V	R009	1-216-821-11	METAL CHIP 1K 5%	1/16W
C015	1-162-968-11	CERAMIC CHIP 0.0047uF 10%	50V	R010	1-216-841-11	METAL CHIP 47K 5%	1/16W
C016	1-162-968-11	CERAMIC CHIP 0.0047uF 10%	50V	R011	1-216-809-11	METAL CHIP 100 5%	1/16W
C017	1-126-206-11	ELECT CHIP 100uF 20%	6.3V	R020	1-216-803-11	METAL CHIP 33 5%	1/16W
C018	1-115-416-11	CERAMIC CHIP 0.001uF 5%	25V				
C019	1-164-739-11	CERAMIC CHIP 560PF 5%	50V	R023	1-216-803-11	METAL CHIP 33 5%	1/16W
C021	1-124-779-00	ELECT CHIP 10uF 20%	16V	R025	1-216-841-11	METAL CHIP 47K 5%	1/16W
C022	1-107-826-11	CERAMIC CHIP 0.1uF 10%	16V	R029	1-216-809-11	METAL CHIP 100 5%	1/16W
C023	1-126-206-11	ELECT CHIP 100uF 20%	6.3V	R037	1-216-834-11	METAL CHIP 12K 5%	1/16W
C024	1-115-416-11	CERAMIC CHIP 0.001uF 5%	25V	R038	1-216-861-11	METAL CHIP 2.2M 5%	1/16W
C025	1-107-826-11	CERAMIC CHIP 0.1uF 10%	16V				
C026	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V	R045	1-216-809-11	METAL CHIP 100 5%	1/16W
C027	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V				
C028	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V		1-682-814-11	SUB PANEL BOARD *****	
C031	1-107-826-11	CERAMIC CHIP 0.1uF 10%	16V	R701	1-249-411-11	CARBON 330 5%	1/4W
C032	1-107-826-11	CERAMIC CHIP 0.1uF 10%	16V	R702	1-249-413-11	CARBON 470 5%	1/4W
C033	1-162-964-11	CERAMIC CHIP 0.001uF 10%	50V	R703	1-249-414-11	CARBON 560 5%	1/4W
C034	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V	R704	1-249-415-11	CARBON 680 5%	1/4W
C035	1-107-826-11	CERAMIC CHIP 0.1uF 10%	16V	R705	1-249-417-11	CARBON 1K 5%	1/4W
C036	1-165-176-11	CERAMIC CHIP 0.047uF 10%	16V				
C038	1-165-176-11	CERAMIC CHIP 0.047uF 10%	16V	R706	1-249-418-11	CARBON 1.2K 5%	1/4W
C039	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V	R707	1-249-420-11	CARBON 1.8K 5%	1/4W
C040	1-164-217-11	CERAMIC CHIP 150PF 5%	50V				
C043	1-107-826-11	CERAMIC CHIP 0.1uF 10%	16V			< SWITCH >	
C044	1-124-779-00	ELECT CHIP 10uF 20%	16V	S701	1-771-410-21	SWITCH, TACTILE (DISC 3)	
C046	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V	S702	1-771-410-21	SWITCH, TACTILE (DISC 2)	
C047	1-107-826-11	CERAMIC CHIP 0.1uF 10%	16V	S703	1-771-410-21	SWITCH, TACTILE (DISC 1)	
C048	1-162-970-11	CERAMIC CHIP 0.01uF 10%	25V	S704	1-771-410-21	SWITCH, TACTILE (▲ (DISC 1))	
				S705	1-771-410-21	SWITCH, TACTILE (▲ (DISC 2))	
		< CONNECTOR >		S706	1-771-410-21	SWITCH, TACTILE (▲ (DISC 3))	
CN001	1-766-835-21	CONNECTOR, FFC/FPC (ZIF) 26P		S707	1-771-410-21	SWITCH, TACTILE (REPEAT)	
CN002	1-784-875-21	CONNECTOR, FFC (LIF (NON-ZIF)) 25P		S708	1-771-410-21	SWITCH, TACTILE (PLAY MODE)	

		< DIODE >			1-678-457-11	TRAY SENSOR BOARD *****	
D001	8-719-988-61	DIODE 1SS355TE-17				< CAPACITOR >	
D004	8-719-988-61	DIODE 1SS355TE-17		C731	1-164-159-11	CERAMIC 0.1uF 50V	
		< IC >				< PHOTO SENSOR >	
IC001	8-759-828-02	IC SP3728AC		IC731	8-749-016-76	PHOTO SENSOR RPI-321 (SUB TRAY 1 HEIGHT SENSOR)	
				IC732	8-749-016-76	PHOTO SENSOR RPI-321 (SUB TRAY 2 HEIGHT SENSOR)	
		< COIL >		IC733	8-749-016-76	PHOTO SENSOR RPI-321 (SUB TRAY 3 HEIGHT SENSOR)	
L001	1-412-031-11	INDUCTOR CHIP 47uH					
L002	1-412-031-11	INDUCTOR CHIP 47uH				< RESISTOR >	
				R731	1-247-876-11	CARBON 75K 5%	1/4W
		< TRANSISTOR >		R732	1-249-408-11	CARBON 180 5%	1/4W
Q001	8-729-903-46	TRANSISTOR 2SB1132-T100-QR					
Q002	8-729-903-46	TRANSISTOR 2SB1132-T100-QR					

TRAY SENSOR

VIDEO

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>	<u>Remark</u>			
R733	1-247-876-11	CARBON	75K	5%	1/4W	
R734	1-249-408-11	CARBON	180	5%	1/4W	
R735	1-247-876-11	CARBON	75K	5%	1/4W	

R736	1-249-408-11	CARBON	180	5%	1/4W	

A-4727-238-A VIDEO BOARD, COMPLETE

< CAPACITOR >

C203	1-164-159-11	CERAMIC	0.1uF	20%	50V
C204	1-126-934-11	ELECT	220uF		10V
C206	1-164-159-11	CERAMIC	0.1uF		50V

< CONNECTOR >

CN201	1-779-276-11	CONNECTOR, FFC (LIF (NON-ZIF)) 8P				
CN202	1-568-951-11	PIN, CONNECTOR 2P				

< FERRITE BEAD >

FB201	1-412-473-21	FERRITE BEAD				
FB202	1-412-473-21	FERRITE BEAD				
FB203	1-412-473-21	FERRITE BEAD				
FB204	1-412-473-21	FERRITE BEAD				

< IC >

IC201	8-749-923-04	IC TOTX178A (OPTICAL OUT TO ST-S9)				
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< JACK >

J201	1-537-943-11	CONNECTOR (DIN) 1P (S VIDEO OUT)				
J202	1-794-970-11	JACK, PIN 1P (VIDEO OUT)				

< COIL >

L201	1-410-525-11	INDUCTOR 220uH				
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MISCELLANEOUS

△ 1	1-476-027-11	POWER BLOCK (AUS, EA, SP, TH)				
△ 1	1-476-028-11	POWER BLOCK (AEP, KR, UK)				
△ 1	1-476-029-11	POWER BLOCK (E, MX)				
△ 5	1-823-394-11	CORD, POWER (E, MX)				
△ 5	1-823-396-11	CORD, POWER (AEP, AUS, EA, SP, TH, UK)				
△ 5	1-823-399-11	CORD, POWER (KR)				
101	1-823-609-11	WIRE (FLAT TYPE) (25 CORE)				
104	1-823-608-11	WIRE (FLAT TYPE) (10 CORE)				
107	1-823-607-11	WIRE (FLAT TYPE) (8 CORE)				
108	1-757-633-11	CORD (WITH CONNECTOR) 17P				
702	1-823-611-11	WIRE (FLAT TYPE) (9 CORE)				
703	1-823-610-11	WIRE (FLAT TYPE) (26 CORE)				
△ 706	8-820-144-06	OPTICAL PICK-UP KHM-240AAA/J1RP (TYPE A)				
△ 706	A-6062-709-A	SERVICE ASSY, KHM-270AAA (TYPE B)				
△ F1	1-532-388-31	MINIATURE FUSE-LINKS, TIME-LAG FUSE (T2AL/250V)				
M721	X-4952-971-2	MOTOR ASSY (LOADING)				

The components identified by mark △ or dotted line with mark △ are critical for safety.
Replace only with part number specified.

MEMO

REVISION HISTORY

Clicking the version allows you to jump to the revised page.

Also, clicking the version at the upper right on the revised page allows you to jump to the next revised page.

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